BOARD OF EDUCATION

Report of the Consultative Committee

ON

DIFFERENTIATION OF THE CURRICULUM FOR BOYS AND GIRLS RESPECTIVELY IN SECONDARY SCHOOLS

(SECOND IMPRESSION.)

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NOTE.

During the latter half of the war the operations of the Consultative Committee were suspended. The Committee was reconstituted by Order in Council dated 22nd July 1920, and the Board shortly afterwards referred two subjects to them for inquiry and advice, viz.—

(1) Whether greater differentiation is desirable in the curriculum for boys and girls respectively in Secondary Schools?

(2) What use can be made in the public system of education of psychological tests of educable capacity?

The results of the Committee's inquiries on the first reference are set out in the following pages. It is obvious that if the Board were to delay the publication of the Report until they had been able to give it the full and mature consideration that its contents deserve, some time would elapse before it could be laid before the public. The Board are anxious to avoid unnecessary delay and they are accordingly issuing the Report at once, but it will be understood that by so doing they do not commit themselves to acceptance of the specific opinions and recommendations contained in it or of the views of their own officers given in evidence.

The problems of curriculum, by their nature, do not admit of any final solution; each generation has to think them over again for itself. The Board desire to acknowledge their obligation to the Committee for their valuable contribution to the elucidation of a practical problem, which has a special importance at the present time, and to commend it to the careful consideration of all workers in the field of public education.

L. A. Selby-Bigge

28th December, 1922.

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NAMES OF THE MEMBERS OF THE CONSULTATIVE COMMITTEE.

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Mr. R. F. Young (*Secretary*).

NOTE.

The estimated gross cost of the preparation of the appended Report (including the expenses of the Witnesses and Members of the Committee) is 976*l.* 7*s.* 4*d.*, of which 280*l.* represents the gross cost of printing and publishing this Report.

DIFFERENTIATION OF CURRICULUM FOR BOYS AND GIRLS RESPECTIVELY IN SECONDARY SCHOOLS.

ANALYSIS OF THE CONSULTATIVE COMMITTEE'S REPORT.

Chapter I.—History of the Curriculum in Secondary Schools.

PREFACE.

The following question was referred to us by the Board of Education on July 29th, 1920:—

> "Whether greater differentiation is desirable in the curriculum for boys and girls respectively in Secondary Schools;"

We have sat on 39 days and have examined 72 witnesses. In addition, sub-committees appointed to consider particular sections of the Report have met on six days.

In our preliminary sittings we were concerned with the exact delimitation of our terms of reference, and with the determination of the various types of evidence which we wished to receive. We found it impossible adequately to consider Secondary Schools without referring in some degree to the later stages of preparatory schools and junior departments, and, in addition, to some of the stages of technical education. On the other hand we came to the conclusion that our terms of reference did not cover the general problems of co-education; and while we were careful to take evidence from head teachers and others connected with co-educational schools, we only considered the bearing of that evidence on the particular problem of differentiation of curriculum which, in our view, was that indicated for our inquiry. We have, however, printed in an Appendix (III.) a general summary of all the evidence which we received from co-educational schools.

In determining the types of evidence which we wished to receive we were guided by a natural anxiety to explore every avenue, and to investigate every point of view, by which we might gain a better and clearer outlook on a somewhat shadowy landscape. We took evidence accordingly from doctors (both men and women) and from psychologists; from head masters, head mistresses, assistant masters and assistant mistresses, in a variety of schools; from inspectors, directors of education, and representatives of examining bodies; from bankers, business men and employers. Not only did we receive a large volume of oral evidence; we also invited, and were fortunate in receiving, a number of memoranda on specific issues which engaged our attention. If there were times when we felt that we might say of ourselves that we were stumbling through shadows

> Quale per incertam lunam sub luce maligna
> Est iter in silvis,

we were constantly comforted and encouraged by the generous help which was given to us by the witnesses and the writers of memoranda, whose names we have recorded in one of our Appendices (I.); and we offer them our sincere thanks for the information and the suggestions which we received.

The difficulties of our inquiry and the volume of our evidence combined to place a heavy burden on our Secretary, Mr. R. F. Young. He carried that burden as if it were a little thing: he added his own researches to our inquiries; and he has enriched by his learning many passages of our Report, and especially the historical introduction which forms our first chapter. We desire to thank him warmly, as one who made himself the friend of us all, for unfailing help and unflagging ardour alike in the conduct of our inquiry and the compilation of our Report.

INTRODUCTION.

On an issue at once so important and so intangible—so far-reaching, but touching so many points, and diverging in so many directions—it was especially necessary to accumulate and to digest all the data which could contribute to a solution. Among such data the history of the development of the curriculum followed in secondary schools, both for boys and for girls, is of primary importance. The "lessons" of history are often obscure; but at any rate we may learn from the study of any historical development the successive phases of opinion by which it has been controlled, and as we see one opinion criticised and superseded by another, we may come to understand the value and the truth of each phase, and to arrive at an opinion of our own which, if it cannot pretend to be final, may at any rate claim to be based on something more than the current views of the hour. The development of secondary education, more especially in girls' schools, has been influenced by successive currents of social opinion; and we have accordingly felt ourselves bound to trace that development and to appreciate, so far as we could, the value of those successive currents. It is for this reason that we have devoted the first chapter of our Report to an historical survey of the development of the secondary school curriculum down to the beginning of the present century.

In the second chapter we have proceeded to add to the historical survey with which we begin a descriptive account of the present system of secondary education in such of its features and aspects as bear on our terms of Reference. The last twenty years have witnessed a remarkable growth both in the quantity and the quality of secondary schools. New types of schools have come into existence: the curriculum has been recast; the system of examinations has been over-hauled. We have sought, accordingly, to give some account in our second chapter of the position of secondary education at the present moment, as it was represented to us by our witnesses: to appraise the qualities, and to note the defects, of secondary schools, so far as our terms of Reference required; and, especially, to consider the signs of existing differentiation, and the possibility of any further differentiation, between the curriculum of boys' schools and that of schools for girls.

The data of our inquiry are by no means exhausted when an historical survey of the past and a descriptive account of the present have both been furnished. An inquiry into the question propounded to us—whether boys and girls should receive a different education during a given period of their lives—must necessarily raise two other fundamental questions. Are boys and girls different in themselves and in their physical and mental

powers and capacities, during that period? And again, have boys and girls, during that period and in subsequent years, a different function to perform in the society of which they are members? The first of these two fundamental questions is itself two-fold: it is a question of the body, and it is also a question of the mind. We have summarised, at the beginning of our third chapter, the evidence which we received from members of the medical profession on the physical differences between the two sexes; and we have been fortunate in receiving from Dr. Adami a Memorandum on the subject (Appendix V.), to which we venture to draw attention. While we are conscious that we do not possess the expert knowledge which alone would enable us to offer an opinion of any weight on a subject on which experts themselves are still uncertain, and in which there is still room for the conduct of further investigations by the strictest methods of scientific inquiry, we cannot but record the impression made upon many of us by the medical evidence which we received. On the mental or psychological differences between the sexes, as distinct from the physical, we received a large body of evidence, which came partly from scholars engaged in the teaching of psychology and in psychological research, and partly from school-teachers and school-examiners. It was only to be expected that the evidence bearing on mental differences should be less definite, and more difficult to summarise definitely and succinctly, than the evidence bearing on physical differences. It is none the less of cardinal importance; and we have therefore taken pains to present at some length an account of this evidence. In doing so we have begun with the general psychological differences between the sexes: we have proceeded to the more specific mental differences which may be traced between boys and girls at successive ages and periods; and we have ended with the particular differences of interest and approach which boys and girls show, both in the various subjects of the secondary curriculum (humanistic, scientific, æsthetic) and in the athletic and other voluntary activities of the general life of the secondary school.

Beyond the large question of the difference between boys and girls in physical and mental structure, there rises the still larger question of their difference in function. Structure does not necessarily determine function; and the peculiarities of the physical and even the mental constitution of boys and girls do not necessarily determine the character of that training of adolescence which is meant to prepare young men and women for the proper discharge of their function in the community. If boys and girls are different in constitution and structure, but alike in the social functions which they are expected ultimately to discharge, they ought to receive a like education; just as, conversely, if they were alike in the former but different in the latter, they ought to be educated differently. The general conception of the social functions of men and women must primarily determine the methods of education of boys and girls.

In the second part, therefore, of our third chapter, and in some sections (§§ 93–101) of our fourth chapter, we have sought to examine and to weigh the factors of social environment, and the currents of social opinion, which affect so profoundly the training and development of the young.

On the basis of these data, thus accumulated and arranged, we have drawn the conclusions and made the recommendations which end our Report. It would be bad art, and worse policy, to anticipate our epilogue by betraying its conclusions in our prologue; but it may be of some service to our readers if we record some general impressions which are fresh and strong in our minds at the end of our two years' inquiry.

In the first place, we feel that the education of girls and women has passed through two stages, and is, perhaps, now entering on a third. Down to 1850, and even later, it was assumed that the education of girls must be different from that of boys, because they belonged to what was regarded as the weaker (or, in a more euphemistic phrase, the gentler) sex. This was the stage of difference based on inequality: it was the stage of feminine accomplishments: it was also the stage of educational inefficiency. During the next stage, which is perhaps drawing to a close, the cause of efficiency was identified with that of equality, and, in the name of both, educational reformers claimed, and sought to secure, that there should be no difference between the education of girls and that of boys. This was the stage of identity based on equality: it was marked, in many respects, by a great advance in efficiency; but if new strength was gained, old and delicate graces were perhaps lost, and the individuality of womanhood was in some respects sacrificed on the austere altar of sex equality.

We may now be entering on a third stage, in which we can afford to recognise that equality does not demand identity, but is compatible with, and even depends upon, a system of differentiation under which either sex seeks to multiply at a rich interest its own peculiar talents. Dissimilars are not necessarily unequals; and it is possible to conceive an equality of the sexes which is all the truer and richer because it is founded on mutual recognition of differences and the equal cultivation of different capacities. In such a stage there might again be difference, but there would still be equality; and in it we might preserve what was good, while discarding what was bad, in either of the previous stages. But this third stage, if it should be one of a ready recognition of differences, whenever and wherever they exist, must also be one of a no less ready recognition of similarities at all times and in all places in which they are to be found. Our inquiry has not imbued us with any conviction that there are clear and ascertained differences between the two sexes on which an educational policy may readily be based. We have encountered a number of facile generalisations about the mental

differences between boys and girls; we have found few, if any, which we were able to adopt. Again and again we were assured by our witnesses that one boy differed from another, and one girl from another, even more than boys differed from girls; and we could not but notice that a superiority which one witness claimed for boys might be vindicated by the next witness for girls. Men and women have existed for centuries; but either sex is still a problem to the other—and, indeed, to itself; nor is there any third sex to discriminate dispassionately between the two. As psychological study develops, and as statistical inquiries and data are multiplied, it may be possible to attain some tangible and valid conclusions. In the meantime it is the part of wisdom neither to assume differences nor to postulate identity, but to leave the field free for both to show themselves. Let boys and girls have a large choice of subjects, and teachers a wide latitude in directing the choice of subjects—such is the policy which we would advocate. It would be fatal, at the present juncture, to prescribe one curriculum for boys and another for girls. We would prescribe as little as possible for either, because we are anxious that both should be free to find and to follow their tastes, and because we desire that the teachers of both should be free to aid and guide the development of their pupils. It is accordingly a relaxation of requirements, and an increase of freedom of choice, that we advocate, alike for the period of studies leading directly to the First School Examination and for that leading to the Second. If such freedom is granted, we look forward to a time of progressive experiment, in which teachers will seek with vision and with courage to provide the course and use the methods which will best suit the capacities and the tastes of their pupils. And if progressive experiment is attempted, it will provide naturally and correctly the detailed answer to the question which at present we can only answer by advising that freedom should be given for such experiment.

In the second place, we feel that, alike for boys and for girls, there has been a stunting of æsthetic taste and capacity owing to the concentration of attention upon the studies of the dry intellect. Education is not only a preparation for the doing of work: it is also a preparation for the spending of leisure, which, if it is less in amount, is perhaps no less in importance than work. Nothing can conduce more to that right spending of leisure, which means so much for true happiness, than an eliciting and training of the gift of æsthetic appreciation. The point need not be laboured here: we would only direct attention to that portion of our Report (§ 52) in which we have stated the argument for a fuller recognition of Art and Music in the curricula of schools and the examinations based on those curricula. We believe that boys, no less than girls, would profit if such recognition were given; but recognising as we do that, whether from tradition or from innate taste, the æsthetic interest is strongly marked in girls, we would urge that the provision of

fuller facilities for its development might bring such a liberation and an enhancing of capacity as would affect the whole standard and character of the work done in girls' schools.

In the next place we desire, in view of the medical and other evidence which we have received, to plead that the pace of education in girls' schools should be carefully adjusted to the strength and the opportunities for study which may be presumed of the average pupil. We are not arguing that a special consideration should be paid to a " weaker " sex, or that a lower standard of achievement should be expected from girls than that which is expected from boys. Under the same conditions of health, and granted the same freedom from other demands on their time, there is every reason to believe that girls can match the achievements of boys when they enjoy the same training. But the conditions of health are not the same, and the freedom from other demands is much less for girls than it is for boys. Girls are liable to seasons of lowered vitality, in which nervous fatigue is serious; and they have a part to play in the home and its duties which can hardly be shirked, even if its effects on their studies may be deprecated. If, under such conditions and amid such distractions, the pace of education in girls' schools were made to keep time with that set in schools for boys, it is obvious that girls would, in effect, be required to do still more than boys in order to remain on a level with them. We have only to state the requirement in order to show its injustice; and in the cause of justice and equality between the sexes we may thus suggest that, for many girls, a later age for passing examinations, and, for all girls, a shorter period of school hours, are imperatively necessary.

Finally, we venture to suggest that the increasing *esprit de corps* in school-life, and the growing tendency to organise and emphasise all school activities, are modern developments which stand in need of criticism and control, more particularly in girls' schools. The standard of conscientious performance of duty was never higher among teachers than it is to-day; but the very height of the standard of teaching may perhaps involve risks for the taught. The school may displace the family from their affections; and, again, it may check what it is meant to foster—the full and free development of individual initiative and vigour. The special danger of girls' schools is that they may become excellently organised and conscientiously loyal groups composed of mediocre and uniform units. Conscientiousness is a virtue; but in the world of education it may also be a vice, alike in the teacher and the taught. Efficiency is a precious thing; but spontaneity is a very precious thing. In the early pioneer days of woman's education spontaneity and vigour sprang from a constant struggle with difficulties. The passing of those difficulties is itself a difficulty for the present generation. It would seem the saddest of paradoxes if the education of women

should lose its vigour in the day of highly-trained teachers, all working assiduously, with a vastly improved equipment, among a multitude of text-books. But we need not anticipate such a paradox. Teachers will do much—very much—for the sake of their pupils; they will give themselves abundantly and unstintingly. But there is a time to withhold as well as a time to give; and as they come to learn its necessity, teachers who can give will know also when. and how, to withhold.

CHAPTER I.

HISTORY OF THE CURRICULUM IN SECONDARY SCHOOLS.

Introductory.

(1) The differences which still exist between the curriculum generally adopted for boys and that adopted for girls are the result of a long historical evolution, and we have accordingly given an account of the main stages in the development. We have taken first the history of schools for boys. Here we begin with a short description of the old literary education in vogue at the public schools and grammar schools of the early part of the 19th century. We then shew how the curriculum of the old endowed schools was slowly expanded, owing to the competition of the private schools and the widespread feeling that the classical culture by itself no longer afforded an adequate preparation for modern life. The proprietary schools and other institutions of public school rank, founded in considerable numbers from about 1820 onwards, represent to some extent a fusion of the better elements which characterised the education given in the grammar schools and that provided in the private schools. They recognised the claims of the old learning while at the same time adding to it serious instruction in Mathematics, in Modern Studies, and in certain branches of Natural Science. The modification of the classical tradition in the old endowed schools was accelerated by the Grammar School Act of 1840, which provided a procedure for revising the original trusts, and by the ever increasing demands of academic and professional examinations. The Public Schools Commission (1861–4) revealed clearly the defects and shortcomings of the old tradition; and we have accordingly summarised the more important recommendations of their Report so far as it deals with curriculum. A brief account follows of the curricula in use in the private schools, which were established in large numbers during the 18th century to meet the needs of parents who were dissatisfied with the narrowness of the old curriculum, and desired to obtain for their sons a practical education which would fit them for commerce, industry, and engineering. We conclude our account of the development of the boys' curriculum with a summary of the recommendations of the Schools Inquiry Commission (1864–68) so far as it relates to curricula. We then describe the development of schools for girls, dealing first with the period up to about 1860, during which, on the whole, the prevailing tradition of girls' education was that it should be completely different from that of boys, and should consist mainly of " accomplish-

ments," that is to say, a slight proficiency in Music, Languages and Literature, Drawing, Painting, and Needlework. A short account is then given of the movement for the higher education of women, and more especially of the views of its more prominent advocates. It seems clear that the leaders of the movement, instead of merely seeking to improve girls' education by the better teaching of the traditional accomplishments, deliberately aimed at substituting for them the subjects of the boys' curriculum. The tradition of girls' higher education that has come down to us from the reform movement of the middle of the last century thus appears to be based on the view that girls' courses should, on the whole, be modelled on the curriculum for boys' schools; and the old conception that Music, Art, and Needlework should form part of a girl's training has only survived in an attenuated form. Thus the boys' curriculum—which, even in the sixties, was beginning to be widened by the inclusion of new subjects— was adopted, almost unaltered; and the girls' schools, which were also expected to teach their pupils Music, Drawing and Needlework, were confronted from the beginning with the problem of the congestion of studies. Another influence was also at work. It is difficult to over-estimate the effect of the Cambridge Local and other external examinations on the evolution of the curriculum in girls' schools. The practical effect of preparing and presenting girls for examinations, which had been arranged by male examiners primarily to suit the requirements of boys' schools, still further accentuated the tendency to assimilate the girls' curriculum to that in use in boys' schools. The preparation of girls for these external examinations is also partly responsible for the rapid growth of an academic tradition in girls' education, which is apt to ignore the needs of the large number of pupils who are likely to marry and found homes at an early age. We next summarise the considerations, humanistic, vocational, and economic, which appear to have influenced the leaders of the movement for the higher education of women. In its inception this was a middle class movement. It was not till the rise, in the eighties and nineties, of the higher grade schools which developed, after 1902, into the present Municipal and County Secondary Schools, that secondary education for girls was placed on a broader social basis. Educationally a similar broadening has also taken place. Many County and Municipal Secondary Schools, while continuing the good tradition of teaching Arithmetic, which characterises the best Elementary Schools, are progressing in the direction of giving to Mathematics and Physical Science a more important place in girls' education than they have hitherto occupied in Girls' Schools of the older type. We conclude the chapter with a summary of the steps taken by the Board of Education since 1902 in administering the State grants payable to Secondary Schools, especially in their bearing on differentiation of curriculum between boys and girls.

A. The History of the Curriculum for Boys' Schools.

The development of the conventional curriculum in Grammar Schools up to about 1825.

(2) For some hundreds of years before the middle of the 18th century the typical school in England was the Grammar School. The aim of the Grammar School was, before all else, to give some form of instruction in Latin,[1] which, up to the first half of the 18th century, was still to a great extent the language of theology, law, science, and diplomacy in Western Europe. The teaching of "the liberal science or art of grammar," which is described in Bishop Oldham's Statutes for Manchester Grammar School (1525) as "the ground and fountain of all the other liberal arts and sciences,"[2] was regarded as the distinguishing mark of higher education. This is shown by the fact that in some instances an English school for the "pettys" was established side by side with the Grammar School. Archbishop Harsnett erected in 1629 two school houses at Chigwell that the "children and youth of Chigwell and other adjoining parishes should be in one of the said schools taught to read, write, cypher and cast accounts, and learn their accidence; and in the other school-house to be instructed in the Latin and Greek tongues."[3] The classical revival of the 16th century in its effect on schools increased the number of classical authors read by displacing certain Latin

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([1]) Leach: *Schools of Mediæval England, passim.*
Leach: *English Schools of the Reformation* (1546–8), pp. 103–108.
Foster Watson: *English Grammar Schools*, pp. 530 foll.
At Bruton Grammar School (1519) all scholars "as well poor as rich, were to be taught freely grammar after the form of Magdalen College, Oxford, or St. Paul's School, London, and not songs, or petite learning or English Reading, but to be made perfect Latin men." (*Schools Inquiry Commission Report* (1868), p. 121.)
It was not infrequently enjoined that Latin alone was to be spoken in school, *e.g.*, Marlborough Grammar School (1550), Alton Grammar School (1641). (S.I.C. *Report*, p. 114.) *cf.* Gréard, *Éducation et Instruction* (1889), II., p. 13, note 3, Gymnasium at Nîmes (1548).

([2]) Mumford: *Manchester Grammar School*, p. 474. *cf.* the Foundation deed of Winchester College (1382) printed in A. F. Leach's *History of Winchester College*, p. 66, where grammar is described as "the foundation, gate and source of all the other liberal arts," and the Foundation deed of Wotton-under-Edge Grammar School (1384) quoted in A. F. Leach's articles in *Proceedings of the British Academy for* 1913–14, p. 465, and *Victoria History of Gloucestershire* II, 396, where grammar is described as "the foundation of all the liberal arts."
"Grammar" is variously defined in the 16th and 17th Century Trust Deeds and Statutes to mean a study of Latin, or of Greek and Latin, to which Hebrew is occasionally added. However, as the Schools Inquiry Commission pointed out, "The only grammar that was, or could be, taught at first was Latin." (S.I.C. *Report*, p. 118.)
The Grammar School was sometimes known as the Latin School. (*See* A. F. Leach's Memorandum in *Report of the Royal Commission on Secondary Education* (1895), V. 59.)

([3]) S.I.C. *Report*, p. 119.

Christian writers[1] formerly in favour and by giving a certain amount of support to the introduction of Greek. The Reformation movement, by its insistence on Biblical study, helped to strengthen the position of Greek and in a few instances also established Hebrew[2] on the list of school studies. In essentials, however, the Grammar School curriculum up to the beginning of the 19th century represented that education in rhetoric, described by Quintilian,[3] which the Church had inherited from the Roman Empire. Its primary object was to train the pupil to express himself in Latin. This explains the survival of the Latin theme in some schools such as Eton down to the early years of the nineteenth century. By their persistent adherence to this narrow literary tradition the Grammar Schools to a great extent missed the real advantages of the humanistic renaissance, as represented by scholars like Erasmus, which had made possible a more adequate appreciation of literature and of the ancient civilisations. The schools in general were content with the stereotyped Latinity of Cicero, and in several Grammar Schools the statutes required the head masters to devote special attention to Cicero's works.[4] At Hawkshead Grammar School (1585) the founder directed "that the chiefest scholars shall make orations, epistles and verses in Latin and Greek for their exercises." Requirements like these, which are more or less typical, explain the almost exclusive attention devoted to classical grammar, composition and even versification.[5] Henry Wotton in his essay "Of the Education of Children" (1672) defends the conventional curriculum, explaining that a child's instruction should begin with Latin,

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([1]) *e.g.*, the "Auctours Christian as Lactantius, Prudentius and Proba, etc." mentioned by Dean Colet in his statutes for St. Paul's School (1518). (Leach, *Milton as Schoolboy and Schoolmaster*, in *Proceedings of the British Academy for* 1907–8, p. 315.)

([2]) Hebrew has formed part of the curriculum at Merchant Taylors' School from its foundation in 1561. (Public Schools Commission, Vol. I., p. 204). See Foster Watson's *English Grammar Schools*, p. 529, for a list of schools which taught Hebrew in the 17th century.

([3]) *Institutio Oratoria*, xii. 2 and *passim*.

([4]) At East Retford (1551) "the more prone natures may spare part of the first year to hear the explication of Tully's Epistles"; at Kirkby Stephen (1566) "the master shall reade to his schollers—Tully's Offices, De Amicitia, De Senectute." (S.I.C. *Report*, pp. 119 and 121.)

cf. Bacon's *Advancement of Learning* (1606), Stebbing's edition III. 284. "Then did Carr of Cambridge and Ascham, with their lectures and writings, almost deify Cicero and Demosthenes." *cf.* also J. Sturm of Strasburg (1507–1589) *de ludis litterarum*, 104. "Propositum a nobis est sapientem atque eloquentem pietatem finem esse studiorum."

([5]) *cf.* the contemporary description of the course of study at the Free School of St. Helens (about 1635) in Foster Watson's *English Grammar Schools*, p. 486. At Hexham Free School the statutes (1600) prescribe "weekly exercises of epistles, themes, orations, verses." *cf.* also the description of the course at Winchester about 1645 in the contemporary Latin poem *de Collegio Wintoniensi*, printed in A. K. Cook: *About Winchester College*, pp. 13–29.

passing on to Greek and Hebrew, as in these three languages were to be found " both the perfection of learning as well as philology and philosophy and the principal streams and rivers thereof."[1]

The 17th and 18th centuries were marked by great advances in Science and by the development of rich vernacular literatures in the countries of Western Europe, and many protests were raised in various quarters against the narrowness of the traditional curriculum. Nevertheless the endowed schools, both local and non-local, supported by the conservatism of the old Universities, successfully resisted all attempts at reform. In 1805 Lord Eldon, accepting Dr. Johnson's definition of a Grammar School as a school in which the learned languages are grammatically taught, ruled in the Court of Chancery that it was illegal for the Governors of Leeds Grammar School to expend the endowment funds in teaching modern and commercial subjects.[2] His judgment was upheld by subsequent decisions, and this state of affairs continued till the passing of the Grammar School Act of 1840.[3] Even before that date, however, some of the old local foundations, under the pressure of public opinion, had enlarged their curriculum; and a way was frequently found for charging fees for the non-classical subjects. For example, Newcastle-on-Tyne Free Grammar School in 1838 taught, in addition to Classics, " French, Writing, English Grammar and Composition, History and Chronology, Geography and the use of the globes, practical and mental Arithmetic, Euclid, Algebra, Trigonometry, Analytical Geometry and Mechanics, &c." French was taught without extra charge, and the fees for instruction in the other branches of learning mentioned above were at the rate of 1*l.* a quarter.[4]

One contemporary writer estimated that in 1818 there were in England 500 Grammar Schools, and that in 120 of them more than 10,000 boys were " pursuing every variety of study now in use in England."[5]

([1]) Similar views are expressed in Hoole's *New Discovery of the old art of teaching school* (1660). *See* Leach's *Educational Charters*, p. 533.

([2]) Attorney-General *v.* Whitley. 11 Vesey 241.

([3]) A process for revising charitable foundations in cases of breach of trust was, however, provided by Romilly's Act, 1812, 52 George 3, c. 101. See Mumford: *Manchester Grammar School*, p. 265.

([4]) Report of the Headmaster to a Committee of the Corporation of Newcastle-on-Tyne (1838).

([5]) See " A letter to Henry Brougham . . . . . on the best method of restoring decayed Grammar Schools," by M.A., Queen's College, Oxford (1818).

It is doubtful, however, whether M.A.'s figures are reliable, as there was a tendency at that time to confuse elementary and secondary education. For example, Brougham's Bill of 1820 " For the education of the poor in England and Wales " provided that the proposed new parochial schools should, where possible, be associated with local grammar schools, and that all grammar schools should teach the three R's.

The curriculum in use in the Public Schools and the more efficient Grammar Schools at the beginning of the 19th century.

(3) The theory underlying the old Grammar School course is well expressed in a book on "Liberal Education"[1] by Vicesimus Knox, Head Master of Tonbridge School from 1778 to 1812. Knox favoured the "established manner" in education, and regarded Latin and Greek as the indispensable basis of all sound culture, but he thought it desirable, when this foundation had been laid, to include Modern Studies. Classical teaching should consist chiefly of the grammar of the two languages and the writing of prose and verse in both. To this should be added the elements of Geography and History, French, some Mathematics, and such accomplishments as Music, Drawing, and Fencing, though Knox himself approved more of "dancing and the learning of the military exercises which is now very common." He expected his boys to read English and easy Latin books in their spare time.

The curriculum of the Fifth and Sixth Forms at Eton under Dr. Keate (1809–1830) may be taken as representing the type of education given in the more efficient Endowed Schools in the early decades of the 19th century.[2] It consisted of reading portions of Greek and Latin authors, mostly poets, and of three compositions a week—an original Latin theme; a set of Latin elegiacs; and, for the Sixth Form, a set of Greek Iambics, and, for the Fifth, a set of Latin Lyrics. No Greek prose-writers were read, except Lucian and a selection from the "Scriptores Graeci." Some boys in the Fifth took Geography and Algebra as extras. This scheme of work was severely criticised in the Edinburgh Review for 1830[3] on the ground that it was merely linguistic. It was urged that hardly any author was read consecutively and no systematic background of ancient history and geography was provided: that in fact attention was directed from the really important lessons of history to "grammatical and metrical trifling"; and that almost no attention was paid to non-classical subjects except a few despised "extras" such as French and Elementary Mathematics.

Thus the classics, with some smattering of divinity, geography, and history, often taught through the medium of Latin, maintained an almost complete monopoly in the Public Schools and in many Grammar Schools until after the passing of the Grammar School Act in 1840.[4] At Eton, Rugby, Shrewsbury, and some

(1) Published in 1787; reprinted in 1812.

(2) The curriculum at Eton under Dr. Keate was much the same as the curriculum in use in 1766 as described by Dr. Thomas James. (Lyte's *History of Eton College* (3rd edn.), pp. 315 foll. and pp. 364 foll.).

(3) No. 101, Article 3.

(4) "The two classical languages, with a little ancient history and geography, held, indeed, until a short time ago, not only a decided predominance, but absolute and exclusive possession of the whole course of study." (Public Schools Commission *Report* (1864), p. 13.)

other schools, French, Arithmetic, Writing, and Drawing were taught on half holidays by "masters of accomplishments."

(4) One of the most progressive of the Endowed Schools in the early part of the 19th century was Shrewsbury, which was carefully re-organised under Dr. Samuel Butler, Headmaster from 1798 to 1836. The curriculum was still mainly classical, but more attention was devoted to Greek than was usual in most schools. English, Geography, Algebra, Euclid, and English History formed part of the ordinary work of the Fifth and Sixth Forms. The boys were left free for a considerable amount of private reading, to which Butler attached much importance. He also introduced promotion by merit and periodical school examinations for the Upper Forms, in which an English theme formed an important part.[1] The pressure of public opinion[2] on the old schools is shown by the fact that Butler's successor, Dr. B. H. Kennedy, made French a part of school "business" in 1836, appointed a German master in 1837, and in 1839 added Mathematics to the regular school curriculum.

Butler's work as a reformer of the traditional public school curriculum was further developed at Rugby by Dr. Arnold.[3] Regarding the formation of moral principles and habits as the most important part of education, he assigned a leading place to history and other forms of instruction calculated to develop character. Under the system which had been established at Rugby by 1835, the boys were taught in three divisions—classical, mathematical, and French. The sixth form remained the same in personnel for all studies. Classics formed the centre of the curriculum, but were supplemented by instruction in French and Mathematics (including Arithmetic, Algebra, Geometry, and Trigonometry), which were taught by the classical form masters. The curriculum also included English, German, Ancient History, and Modern European History. The teaching of Ancient History was partly based on a first hand study of Greek and Roman historians; and the French reading in the sixth form included some of the historical works of Guizot and Mignet.[4]

Arnold introduced into the school teaching of classics the new conceptions, historical, philosophical, and æsthetic, which contemporary continental scholars such as Niebuhr had formed in regard to the civilisation and literature of the Ancient World. His main object was not so much to give the boys useful information as to aid them in gaining it later on for themselves and in turning it to account when gained. The place assigned to historical teaching by Arnold reflects his own predilections, but he was undoubtedly influenced by contemporary changes in

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(1) *Life and Letters of Samuel Butler*, I., 196–197.

(2) The unrest in Secondary education in the thirties may be seen from the fact that the famous Jesuit *Ratio Studiorum* (1599) was revised for the first time in 1832.

(3) Headmaster of Rugby, 1828–1842.

(4) Arnold's *Miscellaneous Works*, pp. 344–346.

Secondary School education in the more progressive continental states, such as Prussia.

His successor, Dr. Tait,[1] appointed a special teacher of modern languages to whom the classical form masters might transfer their pupils; and when the Public Schools Commission reported in 1864, almost all the French teaching at Rugby was conducted by two modern language masters. Tait's arrangements in regard to mathematical teaching also illustrate the development of the curriculum at the more progressive Public Schools. Instead of requiring all classical masters to teach mathematics, he appointed two special mathematical teachers for the whole school. Physics, under the title of "Natural Philosophy," became a subject of instruction at Rugby in 1849, and a laboratory for that purpose was erected in 1859.[2]

The reforms in classical teaching introduced by Butler and Arnold spread somewhat slowly, except in the larger schools, and the Report of the Schools Inquiry Commission (1868) shews that even at that time the teaching in a large number of Endowed Schools was of a kind that benefited only those "who, by superior talents or inordinately long continuance at school, eventually emerged from the darkness over-hanging their elementary training."[3]

The position of Mathematics in Endowed Secondary Schools up to about 1840.

(5) The relative neglect of Mathematics in most Endowed Schools in the earlier part of the 19th century is shown by the fact that up to about 1840 the teaching of this subject was as a rule relegated to Writing masters. At Winchester, for example, Elementary Mathematics were taught by the Writing master till 1834, when a Mathematical specialist was appointed.[4]

There were, however, a certain number of Endowed Schools in which considerable attention was paid to Mathematics. Christ's Hospital, for example, had possessed an efficient Mathematical Department since the second half of the 17th century[5]; and the statutes of certain schools in or near seaport towns expressly provided for the teaching of the "art of navigation and other mathematics."[6] From the beginning of the 19th century

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(1) Afterwards Archbishop of Canterbury (1868-1883).

(2) *Sixth Report of Royal Commission on Scientific Instruction* (1875), p. 107.

(3) D'Arcy Thompson: *Day Dreams of a Schoolmaster* (1864) p .41.

(4) A. K. Cook: *About Winchester College*, p. 320; and Carlisle's *Endowed Grammar Schools* (1818), *passim*. Milton, in his *Tractate on Education* (1644), recommends that arithmetic and geometry be taught at odd hours, "even playing as the old manner was."

(5) E. H. Pearce: *Annals of Christ's Hospital* (1901), chap. vi.

(6) *E.g.*, Dartmouth Grammar School (1679), Williamson's School, Rochester (1701), Neale's Mathematical School, Fetter Lane (1705), and Churcher's College, Petersfield (1722).

the requirements for the Honours Degree at Cambridge,[1] which obliged every candidate to take Mathematics first, gradually raised the standard of mathematical teaching in many smaller grammar schools. Mathematical teaching appears to have improved rapidly after about 1840, and the Public School Commission found that the subject was fairly well established at the nine great Public Schools in 1864.

The curriculum in use in the new proprietary and other schools of the Public School type.

(6) The movement for the modernising of studies was strengthened by the foundation of a number of proprietary[2] colleges and other schools of public school rank, such as Mill Hill (1807), King's College School (1829), University College School (1830), Cheltenham (1841), Liverpool College (1842), Marlborough (1843), Rossall (1844), Wellington (1853), and Clifton (1862). Most of these schools provided from the first a broader curriculum than the old Endowed Schools. The curriculum in use in 1821 at Mill Hill School (founded as a Grammar School for Non Conformists) throws an interesting light on the educational tendencies of the period. In addition to Classics the boys were taught French by a Frenchman, and devoted a considerable amount of time to Mathematics, including Euclid, Trigonometry, and Algebra. Courses of lectures[3] on Natural and Experimental Philosophy were provided, and Drawing was taught by "an artist of respectability." Ancient and Modern Geography, History, English Reading, and Elocution formed an integral part of the curriculum.[4] Similarly the course at University College School in 1841 included Latin, History, Geography, French, English, Arithmetic, Bookkeeping, and Elementary Mathematics. Greek was taught only in the higher forms. The course for the Fifth form included natural philosophy, and the Sixth Form studied experimental philosophy and mechanics.[5]

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(1) Oxford too, under the Statute of 1800, required Mathematics as well as Classics for the B.A. Degree from 1802. After 1807 a separate class list for mathematics was established.

(2) The term "proprietary schools" is usually applied to a certain class of schools which are the property of a body of shareholders, but the Schools Inquiry Commission use the expression as meaning schools which were not endowed, nor the property of the master or mistress who taught in them. These proprietary schools principally owed their origin either to the want of schools of a more public character than any private school, even of long standing, could possibly assume, or to the desire of a particular religious denomination to have a school in which religious instruction might be given in complete accordance with their views. (S.I.C. *Report*, p. 310.) *cf. Report of Royal Commission on Secondary Education* (1895), p. 49.

(3) *cf.* The weekly mathematical lectures introduced at Harrow in 1807 by Dr. George Butler. (Carlisle: *Endowed Grammar Schools* (1818), II., p. 147.)

(4) Brett James: *History of Mill Hill School*, p. 66 and p. 56.

(5) From information kindly supplied by the Secretary to the Council of University College School.

Among these newer schools special mention should be made of Cheltenham College, which from the first had a Modern (or Military and Civil) Department intended primarily to prepare boys for the entrance examinations for Woolwich and Sandhurst, for appointments in government offices, for engineering or for commercial life. The main study was Mathematics, and while Latin was to a certain extent maintained, Greek was entirely omitted, Natural Science was introduced, and greater stress was laid on Modern Languages. The lower forms were carefully grounded in Latin, English, History, and Elementary Mathematics. The subjects taught comprised Mathematics, Latin, English, History, Geography, French, German, Hindustani, Physical Science, Drawing, Fortification, and Surveying.[1]

The views of the Public Schools Commission (1864) on the Curriculum.

(7) The Report of the Public Schools Commission (1864) throws a flood of light on contemporary views regarding the curriculum for boys. The Commissioners were of opinion that the course of study provided at the nine great Public Schools was sound and valuable in its main elements, Greek and Latin, but was lacking in breadth and flexibility.[2] The position which different studies held in a school was determined by several considerations—their admission into or exclusion from the school course; the time allocated to them; the value assigned to them in examinations, and in promotion within the school; and the like. At all nine schools Arithmetic and Mathematics were taught: in all except Eton instruction was given in one modern language, either French or German; and at Rugby and Charterhouse instruction was given in both. Natural Science was taught at Rugby to boys who chose to study it instead of Modern Languages. There was a lecturer in Chemistry at Charterhouse, and lectures in Science were given at some of the other schools, though attendance at them was virtually optional. The Commissioners pointed out that Natural Science was "thus practically excluded from the education of the higher classes in England; a plain defect and a great practical evil." Drawing might be learned as an extra, and some instruction in Music might generally be obtained in the same way. The Commissioners, who appear to have taken the Prussian Gymnasium as their model, still regarded Classics as the principal study, but they held that the

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(1) S.I.C., Vol. IV., Part I., p. 527, Q. 5457: Public Schools Commission, Vol. II., pp. 546 foll.

(2) This Commission only dealt with nine ancient foundations, *viz.*, Eton, Winchester, Westminster, Charterhouse, St. Paul's, Merchant Taylors', Harrow, Rugby, and Shrewsbury, whereas the Schools Inquiry Commission which sat from 1864 to 1868 dealt with Secondary Schools as a whole, *i.e.*, all that lay between the nine great Public Schools and "the education of boys and girls of the labouring class" which had been dealt with by the Newcastle Commission (1858-1861).

main object for which boys learned Greek and Latin was to teach them to use their own language. They recommended that, in addition to classics and religious teaching, all boys should receive instruction in Arithmetic and Mathematics; in at least one modern language, which should be either French or German; in some one branch at least of Natural Science; and in either Drawing or Music. Boys should also acquire a good general knowledge of Geography and Ancient History, some acquaintance with Modern History, and a command of pure grammatical English. Mathematics should include the elements of Geometry, Algebra, and Plane Trigonometry; more advanced students should also study Elementary Applied Mathematics, and especially the elements of Mechanics. Natural Science should, where practicable, include two main branches, one comprising Chemistry and Physics and the other comparative Physiology and Natural History both animal and vegetable.

The recommendations regarding the teaching of Natural Science were apparently taken direct from the arrangements then in force for the teaching of "Naturkunde" in the Prussian Gymnasia, which assigned one hour a week out of 28 to that subject,[1] and it is evident that the Commissioners believed that two kinds of Natural Science, the physico-chemical and the biological, could be profitably handled in the very short time allotted to them. Similarly Geography was regarded as ancillary to History as it was in the German Gymnasien. The paragraphs dealing with the teaching of History are especially instructive, and the Commissioners rightly observe that the proper degree and method of teaching History or of requiring it to be taught at school were matters not settled by general practice.[2]

At Rugby, Marlborough, and Wellington, which had followed the tradition of Arnold, the reading of modern history was combined with that of French. The underlying idea was apparently to experiment with Guizot and other French or German historical writers with the object of discovering whether they might not serve as a modern equivalent for Arnold's lessons on Thucydides and Tacitus.[3]

The Commissioners pronounced strongly against attempts to divide the old Public Schools into Classical and Modern Sides as

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(1) The Prussian *Gymnasien* in the sixties were essentially classical schools. Boys entered at 9 and remained till 19. "The school is divided into six classes. Latin begins at the bottom, and occupies 10 hours a week out of 28, till the head class, and then 8 hours out of 30. Greek begins two classes from the bottom, and occupies 6 hours a week throughout. German, 2 hours; arithmetic and mathematics, from 3 to 4; French, 3 in the lower classes, 2 in the higher; geography and history, 3 in the higher and 2 in the lower; natural science, 2 in the head class and 1 below. All learn drawing in school hours; singing and gymnastics out of school." (S.I.C. *Report* (1868), p. 67.)

(2) P.S.C. *Report*, pp. 11–18 and 28–33.

(3) ditto p. 18, and Vol. II., Appendix, pp. 509–579.

had been done in several of the newer schools such as Cheltenham and Marlborough.[1]

Thring's ideas on the School course, and his indirect influence on the evolution of the curriculum in Public Schools.

(8) The curriculum devised for Uppingham by Edward Thring, Head Master from 1853 to 1887, is of considerable interest on account of its recognition of the importance of the teaching of English and of aesthetic subjects, especially Music and Art. The ordinary school subjects, Classics, English Composition, on which great stress was laid, English Grammar, Scripture, History, and Geography, were taken in the morning; in the afternoon came music and various optional subjects of which every boy had to take one or two, such as French, German, Chemistry, Carpentry, Turning, and Drawing. Thring was one of the first head masters to assign to Music a prominent place in the school by making attendance at Singing classes and Music lessons compulsory and subject to the same discipline as any regular school subject. He also attached great importance to systematic physical exercises and to hobbies; the Uppingham gymnasium, opened in 1859, was the first of its kind in any English public school, as were also the workshops, laboratories, school garden, and aviary. He believed in classics, but his point of view was intermediate between the old-fashioned scholarship of the Porsonian tradition and Dr. Arnold's method, in which emphasis was laid on the thought of the authors. He regarded all teaching of the history of the English language as mere cramming, and, like the Public School Commissioners, he did not believe in Modern Sides, thinking it would be wiser to establish separate schools with a scientific bias on the lines of the German Realschulen.[2] It was partly owing to the indirect influence of Thring's methods that school activities outside the classroom developed so rapidly after 1868. The older schools had already systematic organised games, school magazines and debating societies, and these spread rapidly to the smaller schools. In the same way systematic gymnastics were introduced on the Uppingham model into most schools. School plays, concerts, Natural History societies and other-out-of school activities were developed somewhat later.

The evolution of the curriculum of private schools up to 1868.

(9) Even in the 17th century the upper classes were dissatisfied with the narrowness of the old classical curriculum, and frequently entrusted the education of their sons to private tutors,

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(1) P.S.C. *Report*, pp. 37–39.

(2) Parkin: *Life of Edward Thring*, and the evidence given by Thring before the Schools Inquiry Commission in 1865, Vol. V. (ii), Questions 9853 foll.

afterwards sending them to the Knightly or Courtly academies[1] (in France, and other continental States), which gave instruction not only in horsemanship and the use of arms, but also in Modern Languages, History, and Geography, and in the application of Mathematics to military and civil engineering. Milton, Cowley, Locke, Defoe and many minor writers urged in vain that academies of similar type should be established in England.[2] The celebrated controversy in France and England between the supporters of ancient and those of modern learning at the end of the 17th century was symptomatic of the change that was gradually taking place in conceptions of curriculum; and the demand for "useful studies" which became so insistent in the early decades of the 19th century[3] may already be traced in Locke's treatise "Some Thoughts concerning Education" (1693).

The policy of ecclesiastical uniformity adopted after the Restoration compelled many youths to seek on the Continent a training foreign both in aims and in means, and their views on education on their return to England must have indirectly added to the widespread dissatisfaction with the traditional curriculum, which became still more acute after the Industrial Revolution. During the 18th century the Endowed Schools remained impervious to new ideas. Discipline was harsh, morality lax, and the staffing frequently insufficient. These defects, combined with the contempt of the school authorities for outside opinion and the tenacious adherence to ancient custom, stimulated the growth of a body of public opinion hostile to the traditional curriculum.

The Nonconformist academies, established in considerable numbers from about 1662, though primarily intended for the education of ministers, received many lay pupils.[4] They often provided a remarkably wide curriculum (including, in addition to Greek and Latin, Mathematics, Modern Languages, and a certain amount of Natural Science, chiefly Physics), and were

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(1) The theory of this form of education, primarily designed for the governing class, was expounded by Baldassare Castiglione of Mantua in his treatise "Il Cortegiano" (*The Courtier*) 1528, which was translated into English by Sir Thomas Hoby in 1561. The first proposal for the establishment of such institutions in England was made by Sir Humphrey Gilbert in 1572. *cf.* also Bourchenin: *Académies protestantes* (1887) and Adamson: *Pioneers of Modern Education* (1905), chapter 10. Proposals for schools of this type, half academic, half secondary in character should be clearly distinguished from contemporary proposals for the establishment of academies for research only, such as the Solomon's House, described in Bacon's *New Atlantis* (published in 1627), and Samuel Hartlib's plan for a philosophical college to be called "Antlantis" in his *Memorial for Advancement of Universal Learning* (about 1650).

(2) Milton: *Of Education* (1644). Cowley: *Letter to Robert Boyle* (1659). Locke: *Some thoughts concerning Education* (1693). Defoe: *An Essay upon Projects* (1697).

(3) *e.g.*, Bentham's scheme for a Chrestomathic Day School (1816).

(4) Cambridge *History of English Literature*, Vol. IX., p. 392. See also Vol. X., p. 384, for a list of these Academies from 1680 to 1770.

influenced indirectly by educational developments in Holland, Scotland, and the Protestant cantons of Switzerland.

When Protestant Nonconformists were allowed to follow the teaching profession,[1] a great number of new private schools, partly modelled on the older academies, were established, especially in the towns, to meet the needs of merchants and manufacturers who demanded a more practical education for their sons than that provided in the Endowed Schools. These private schools had many faults and weaknesses, but they were more receptive to new ideas and more ready to experiment than the old foundations, and subsequent reforms in the curriculum can be traced largely to their influence.

Dr. Thomas Arnold, writing in 1832, describes the English or Commercial Schools at which a large proportion of the sons of farmers and tradesmen received their education. "In some instances they are Foundation Schools, but more commonly they are private undertakings entered upon by individuals as a means of profit for themselves and their families. The pupils receive instruction in Arithmetic, History, Geography, English Grammar and Composition." "The rudiments of Physical Science are also taught in them, and with a view to his particular business in life he learns Land Surveying if he is to be brought up to agricultural pursuits, or Bookkeeping if he is intended for trade."[2]

The foundation of the College of Preceptors in 1846 for the promotion of middle class education, and more especially the training and certification of teachers, is a significant indication of the growth of numbers and professional solidarity among teachers of privately owned schools.

Some interesting developments may be observed in the schools[3] established in the early part of the nineteenth century by the Society of Friends. Special care was devoted to the study of the

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(1) By an Act of Parliament passed in 1779 (19 Geo. III., c. 44). An Act passed in 1791 (31 Geo. III., c. 32, §§ 13–17) extended a like measure of liberty to Roman Catholics. Several of the English Colleges in France were transferred to England after the Revolution. For instance, St. Edmund's College, Ware, founded as a private school for Roman Catholics in 1769, received in 1795 the southern half of the students from the English College at Douai, while the northern students from Douai settled at St. Cuthbert's, Ushaw. In the same way, the Benedictine Schools at Downside (1792 and 1814) and Ampleforth (1802) represent schools transferred by the Order from France after the Revolution. Several of these schools long retained traces of the French tradition of secondary education. For example, the top Forms at Downside were called Rhetoric and Poetry and the boys who had passed the London Matriculation were called "philosophers." Dom Birt: *History of Downside School*, p. 243. cf. *Etablissement de l'exercice public des classes au Collège de Narbonne*, (1599), printed in Félibien, *Paris*, v., p. 800.

(2) *Miscellaneous Works*, p. 231. *cf.* V. Knox's description of these private academies in the *Pamphleteer*, Vol. XIX., p. 425. *Cf.* also the Rev. Mr. Lancaster's school in Wimbledon at which Schopenhauer was a parlour boarder in 1803 (Schopenhauer's *Briefe*, p. 59).

(3) Several of these schools were "dual" schools. The first co-educational school was Rawdon (as from 1883).

mother tongue, much attention being paid to oral Reading and Composition, and the pupils were frequently set to write accounts of lectures, excursions, and other episodes of school life. Considerable attention was also devoted to Geography, Elementary Natural Science, Natural History, and Manual Work.

It would appear from the Reports of the Assistant Commissioners, published in the volumes of the Schools Inquiry Commission (1868), and from other sources, that there were two main types of private schools in the last century. On the one hand there were the schools conducted purely as commercial undertakings, which provided what the proprietors thought the public demanded, and cared little for educational ideals. Many schools of this type were nominally Secondary Schools, but were giving only elementary education. On the other hand there were the schools conducted by educational idealists and pioneers who were keenly interested in educational experiments. Many schools of this type had a short life owing to lack of capital. The great mass of schools was intermediate between these types.[1] One of the most famous of private schools was that at Hazelwood, near Birmingham, kept by the Hill family, which lasted from 1819 to 1833. The curriculum is described in a work published anonymously in 1822.[2] In order to teach the boys the arts of self-government and self-education, the school polity included a Legislature, Judiciary, and Executive, thus affording one of the earliest experiments in the teaching of practical Civics.[3] The youngest pupils, who were taught in a separate classroom, were kept together for all subjects, while the remainder were classified and re-classified for each branch of study. The course in the eight classes included "Orthography, Parsing, Penmanship, History, Geography, Arithmetic, Mensuration, Trigonometry, Geometry, Algebra, Latin, Greek and French." The first Geography class consisted of members of the highest French Class, and was taught by the French master in French, "improvement in French being quite as much the object as the acquisition of geographical knowledge,"[4] Gymnastics and Swimming were systematically taught, and boys whose inclinations were practical were encouraged to take up such subjects as Printing at the school press, Drawing, Etching, Painting, Map-

(1) Extracts from prospectuses of typical private schools in Yorkshire are quoted in Fitch's Report, S.I.C., Vol. IX., p. 261.

(2) *Plans for the government and liberal instruction of boys in large numbers as practised at Hazelwood School* (1822). The second edition (1825) was reviewed by Jeffrey in the *Edinburgh Review* for that year. See the criticisms on the curriculum at Hazelwood School, in W. L. Sargant's *Essays by a Birmingham Manufacturer*, Vol. II., Essay 3, pp. 186 foll.

(3) This clearly shows the influence of works such as Montesquieu's *Esprit des Lois* (1748), and Delolme's *Constitution of England* (1775), which were extensively used in private schools.

(4) A like arrangement was adopted by Arnold at Rugby in 1835, where the 2nd Form in the French Division read Gaultier's *Geography* while the Lower Remove read Jussieu's *Jardin des plantes*. (Arnold: *Miscellaneous Works*, pp. 344–345.)

making, Surveying, making mathematical diagrams, modelling animals, making machines, Music, and reporting debates and trials before the school jury. Many of the arrangements show the influence of Pestalozzi. Mapping, for example, was practised out-of-doors in association with Surveying. There was a weekly conference of the teachers, dealing with instruction rather than government, "which was left to the Committee, consisting of the Principal, 10 resident teachers, and 14 boys, elected by their fellows."[1]

The Schools Inquiry Commission of 1868 pointed out that, despite their faults, the private schools were open to all that was new, and, unlike the endowed schools, could adapt themselves with ease to every demand of the day. The instruction in the private schools, when compared with that given in the grammar schools, had a distinctly more modern cast.[2] Sir Joshua Fitch reported, in 1866, that in Yorkshire "almost all the educational enterprise of the last few years has originated with private teachers."[3]

The influence of external examinations on the curriculum of Secondary Schools of different types from about 1850.

(10) Apart from the pressure exerted by parents, the curriculum of many boys' schools, both endowed and private, was after about 1850 largely determined by the requirements of various external examinations, such as the London Matriculation Examination, the examinations for the Indian Civil Service, first held in 1855, the Oxford Local Examinations, instituted in 1857, the Cambridge Local Examinations, first held in 1858, and the Examinations of the College of Preceptors.[4]

The West of England Examinations, held at Exeter in 1857, which led to the establishment of the Oxford Local Examinations in the following year, were designed for boys educated with a view to employment in agriculture, arts, manufactures, and commerce who were not going to the University and would as a rule leave school at 16. The report on the Exeter Examination (1857)[5] contains much information regarding contemporary education in private schools and small grammar schools. The only good work done was in Latin; many boys failed in elementary subjects;

(1) Certain features of the Hills' curriculum, such as the practical teaching of Mathematics, appear in later private schools, for example Bainbridge's School at Lincoln, where the boys were taught land-surveying with the theodolite.

(2) S.I.C. *Report*, p. 286. *See also* Dr. Wormell's Memorandum on contributions of private school teachers to the improvement of educational methods (Royal Commission on Secondary Education (1895), V., 14–15).

(3) Detailed descriptions of the curricula of private schools are given in Bryce's Report on Lancashire, and Fitch's Report on the West Riding. (S.I.C. Vol. IX., pp. 534-601 and 253-277.)

(4) Consultative Committee's *Report on Examinations in Secondary Schools* (1911), (Cd. 6004), Chapter I.

(5) *Some Account of the Origin and Objects of the New Oxford Examinations*, by T. D. Acland (1858), *passim*.

Mathematics needed to be more thoroughly taught and more entirely assimilated; the special technical papers set on the application of knowledge to industry were found to be useless. The value of Art and Music in the education of boys is emphatically expressed in the documents recording these early examinations on the ground that they formed a part of a sound general education.

Despite the disadvantages of the examination system it should be pointed out that English Literature and Modern Studies were fostered by being included in the programmes drawn up for the examination of boys and girls in Secondary Schools by the Universities and the College of Preceptors. The London Matriculation Examination, for instance, which greatly influenced the curricula of schools, public and private, required candidates to offer Latin, Mathematics, English with English History and Modern Geography, two branches of Natural Science, Greek (which was required down to 1874), and either French or German.

Contemporary Criticisms of the Curriculum.

(11) (*a*) *Herbert Spencer's Essay on Education* (*1859*).—Herbert Spencer attacked the existing curriculum in a series of articles written between 1854 and 1859 and issued in book form in 1859. This work, which was very widely read, did much indirectly to undermine confidence in the old educational tradition. The section dealing with curriculum is largely a restatement of the utilitarian point of view. He comes to the conclusion that knowledge of the various branches of Natural Science is of the greatest value, and his section on curriculum accordingly resolves itself into an elaborate special plea for making the teaching of Natural Science the staple of formal education. In another part of the book he strongly advocates systematic physical training.

(*b*) "*Essays on a Liberal Education* (*1867*)."—The volume of "*Essays on a Liberal Education*," published in 1867 under the editorship of Dean Farrar, at that time assistant master at Harrow, reflects very clearly the widespread dissatisfaction with the conventional curriculum. Professor Henry Sidgwick, in an essay on the theory of classical education, dismisses as sophistical many of the ordinary arguments adduced in favour of the classics, urging that the Greek and Latin authors are fine educational instruments just because their work is literary, but that for this reason it is also reasonable to employ for like purposes the literature of modern tongues. He points out that, even if it be admitted that knowledge of the processes and results of Physical Science does not by itself constitute culture, nevertheless it is of such great importance that the intellectual man who has been trained without it must feel at every turn his inability to comprehend thoroughly the present phase of the progress of humanity. As regards Natural Science and English he writes—"I think that a course of instruction in our own language and

literature and a course of instruction in Natural Science ought to form recognised and substantive parts of our school system. I think also more stress ought to be laid on the study of French. While advocating these new elements I feel most strongly the great peril of over-burdening the minds of youth to their intellectual and physical detriment or both." He favours the reformed methods in teaching Greek and Latin, and in particular the disuse of verse composition.

Canon J. M. Wilson, at that time Science Master at Rugby, in his Essay on Science Teaching, expressed the view that a study of two unlike branches of Natural Science was a necessary part of any complete education, and emphasised the habits of accurate observation, exact reasoning, and power to judge evidence which could be developed by good scientific teaching. Mathematics did not altogether serve the same purpose. In discussing the question of the choice of two branches of Natural Science for study, he pointed out that Geology and Chemistry adapted themselves too readily to mere cramming. Botany and Physics were free from this defect; but it was difficult to say what they might become with bad text books and bad teachers.[1]

(c) *Huxley's views on Secondary Education.*—The leading advocate of the claims of Natural Science in the sixties and seventies was Professor T. H. Huxley, who, in his *Essays*, urged the claims of Science to be included in any complete scheme of secondary education. His views exercised a great influence on the development of public opinion in regard to scientific teaching. It is very difficult to summarise them satisfactorily. It may, however, be said that he fully recognises the claims of the Humanities. He criticises the contemporary teaching of classics on the ground that it was not properly a study of man and of literature, but of language and style. The true Humanities were Literature, History, Philosophy, and Social Science; the classics, at their best, served as an introduction to these, and, at their worst, were mere grammatical verbiage. Huxley outlines a curriculum which should consist of Natural Science, the Theory of Morals and of political and social life, History and Geography of the Motherland, English Literature and translations of the greatest foreign writers, English Composition, Drawing, and either Music or Painting.[2]

The Schools Inquiry Commission (1864–1868).

(12) The Report of the Schools Inquiry Commission (1868) contains much valuable information regarding the curriculum in use at that time in the old Endowed Schools, 782 in number.

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(1) In another paper, written in 1866, Canon Wilson states that the decided opinion of those who have given most attention to the subject is that Experimental Physics ought to form the staple of scientific teaching at Schools (Sixth Report of Royal Commission on Scientific Instruction (1875), p. 107).

(2) *Collected Essays*, Vol. III., No. 7.

Of these only 209, or about 27 per cent., were really Classical Schools; 183 Schools, or about 23 per cent., were semi-Classical, and taught only the rudiments of Greek or no Greek at all; 340, or about 43 per cent., did not teach either Greek or Latin, and seldom gave any effective instruction even in Mathematics, French, or Natural Science. The majority, in fact, of these 340 Schools gave an education no wider than that of an ordinary Elementary School. Only between eighty and ninety of the Endowed Schools in England were sending students regularly to Universities; and of these only forty sent as many as three every year. In the Grammar Schools which really taught Classics the teaching was generally poor, and in many cases it seemed as if the main function of Classical teaching was to furnish a plea for the neglect of all other useful learning. English and Natural Science were rarely taught systematically or regarded by head masters as a serious part of the school course. The inferiority of the Non-Classical Schools described in the Report is especially noteworthy, and was doubtless partly due to the fact that few of those who were anxious for reform had any clear idea of what the Non-Classical School should do.

The Commissioners considered that three grades[1] of Secondary Schools were required—

(*a*) First-grade schools with a leaving age of 18 or 19, closely connected with the Universities, which would teach Greek as well as Latin.

(*b*) Second-grade schools with a leaving age of 16 or 17, which would teach two modern languages besides Latin and would make Latin an important subject. The idea of this type of school was largely derived from the Prussian Realschulen of the first grade.[2]

(*c*) Third-grade schools with a leaving age of 14 or 15 which would teach the elements of French and Latin. These schools would now be regarded as Elementary, but the Commissioners treated them as Secondary because the Elementary School Code of 1860 had practically fixed the leaving age for Elementary Schools at 12. They represented a type intermediate between the primary and the secondary schools, such as the Prussian Bürgerschulen and the Sekundarschulen of Zürich. It is noticeable that Latin is still treated as a constituent element in the curriculum even of third-grade schools.[3]

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(1) It is said that the Commissioners derived this idea from the tripartite organisation of Liverpool College with its three distinct Schools, Upper, Middle, and Commercial. (S.I.C., IX., 591), and Sir Michael Sadler's *Report on Secondary Education in Liverpool* (1904), pp., 23 and 40.)

(2) See the description of Prussian Realschulen in the Sixties in S.I.C. *Report*, p. 69. The Realschulen of the highest grade (erster Ordnung) instituted in 1859, were later known as Realgymnasien. (Paulsen, *Geschichte des gelehrten Unterrichts* II., 559–563.)

(3) S.I.C. *Report*, pp. 577 foll.

It is clear from these recommendations that secondary schools were still regarded as designed primarily for the middle class, and that public opinion had not yet come to realise the value of physical and chemical science for the working classes nor the possibility that farmers' sons could profit by a scientific education with an agricultural bias. The Commissioners observe that the importance of natural science as a branch of general education "has received a large amount of support of the highest kind," and they add, "we cannot consider any scheme of education complete which omits a subject of such high importance." They recommend that a beginning should be made with the outlines of physical geography, "which requires no apparatus but good maps," and later they recommend experimental physics and chemistry inasmuch as "they constitute the common platform of all the other sciences."[1]

The Chairman of the Endowed Schools Commission, set up by the Endowed Schools Act of 1869, informed the Royal Commissioners on Scientific Instruction in 1871 that "In all the endowed schools, whether for boys or girls, we propose to require, as a specific and indispensable part of the course, at least one branch of physical science; and in a few, intended for the more special encouragement of what may be called *modern* subjects, we suggest, without absolutely requiring, more extensive teaching of science."[2]

The recommendations of the Devonshire Commission (1875) in regard to Science teaching in Secondary Schools.

(13) The Sixth Report of the Royal Commission on Scientific Instruction and the Advancement of Science, published in 1875, deals with Secondary Schools. The Report recommends (i) that in all Public and Endowed Schools a substantial portion of the time allotted to study should, throughout the school course, be devoted to Natural Science, and that not less than 6 hours a week on the average should be assigned to this purpose; (ii) that in all general school examinations not less than one-sixth of the marks should be allocated to Natural Science, and that in any Leaving Examination the same proportion of marks should be maintained.[3] It is significant that the Report omits to define precisely the character of the scientific teaching to be given. Contemporary scientists were unanimous in urging that Natural Science should be taught, but apparently they had never attempted to determine what specific sciences.[4] The Commis-

(1) S.I.C. *Report*, p. 35.

(2) Sixth Report of Royal Commission on Scientific Instruction, 1875 Appendix I.

(3) Sixth Report of Royal Commission on Scientific Instruction, 1875, (C. 1279), p. 10, § 49.

(4) A few practical teachers had however already formed definite ideas on the subject. See the summary of Canon Wilson's *Essay on Science Teaching* (1867) on p. 18.

sioners, therefore, merely record their opinion that school laboratories should be constructed to supply accommodation for practical work in Physics as well as in Chemistry, and that many persons of experience in education had arrived at the conclusion that Chemistry is not so well fitted for the practical instruction of young pupils as Physics.[1]

The condition of the boys' curriculum about 1868.

(14) It should be noted that the gradual expansion of the traditional course by the inclusion of new subjects such as Mathematics, Science, Modern Languages, and English subjects, had been carried out at the cost of overcrowding, and the sacrifice of leisure and free time for the older pupils. This disadvantage was partly obscured by the fact that many of the better equipped schools established Modern Sides, in which more attention was devoted to Mathematics, Elementary Science, and Modern Languages, though Latin was still retained as the central point of the literary side of the curriculum. The development of organised games and other out-door activities in boys' schools, and the increasing attention devoted to physical drill and gymnastics, further curtailed the available free time of the individual boy in the public schools and the more efficient grammar schools and proprietary schools. A few years later any free time that still remained was further encroached upon by the development of school societies and other corporate out-of-school activities. Thus the boys' curriculum was already becoming rather heavy at the period (1860–1875) when it was adopted with some minor modifications as the model for courses in the new girls' schools.

B.—History of the Curriculum for Girls' Schools.

The conventional course of instruction for girls up to about 1860.

(15) The aim of girls' education in England down to the 18th century differed little from the simple course described by St. Jerome in the fourth century, consisting of religious instruction, reading, writing, grammar, and spinning[2]. Such is the educational background envisaged in William Law's *Serious Call* published in 1728, where Matilda's daughters, whose chief anxiety was to appear genteel, read only the Bible and devotional literature. In the 18th century French, Italian, Music and

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(1) Sixth Report of Royal Commission on Scientific Instruction (C. 1279), p. 5, § 31.

(2) *Epistles*, 107 and 108, § 7. Up to the dissolution of the monastic houses, the course in the nunnery schools, quaintly described by Fuller as "she schools," probably followed the lines indicated by St. Jerome. (Fuller: *Church History* (1655), ed. Brewer, 1845, III., 336).

Drawing were added to this course of instruction.[1] It is true that in some upper class families a more liberal tradition prevailed, but it must be remembered that Lady Jane Grey and the Princess Elizabeth in the 16th century, and the daughters of Colonel Hutchinson and John Evelyn in the 17th, were educated at home by domestic tutors and not in schools. The French or Italian, and the Music and Dancing, of this domestic upbringing were included in the teaching given in the boarding schools of the 18th and early 19th century, where they figured as "extras" or accomplishments, with deplorable effects upon girls' schooling generally. English, reading, writing, keeping accounts, drawing, plain and fine needlework, dancing, and French made up the course in most schools of this type. Special attention was paid to speaking and writing English; and text books such as Enfield's *Speaker* (1774) and Lindley Murray's *English Grammar* (1795) were widely used. Music and Italian were added in the more ambitious schools.

Sydney Smith, writing early in the 19th century, says: "The system of female education as it now stands aims only at embellishing a few years of life which are, in themselves, so full of grace and happiness that they hardly want it, and then leaves the rest a miserable prey to idle insignificance."[2] At the beginning of the Victorian era the education of women was usually at a low ebb, being scanty, superficial and incoherent. Many girls were instructed by ill-trained private governesses; and the numerous private schools for girls, which were for the most part boarding schools, were probably even worse than those described in 1868 in the report of the Schools Inquiry Commission, where the ordinary course of instruction for girls is characterised as being very narrow and unscientific. There was general indifference on the part of parents to the mental cultivation

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(1) The original trusts (1627) of the Red Maids' School, Bristol, for the maintenance and education of 40 poor women children direct that they are to be "taught to read English, and to sew or do some other laudable work towards their maintenance." (S.I.C., vol. XV., 192.)

Mrs. Amye, of Manchester (1638), who had "the tuition of many children of rank and quality," brought them up "with reading and all manner of sewing." At fit seasons she employed "a scrivener to teach the children to write, and a dancing master to teach them to dance and a musician to learn them music." Burstall: *Story of Manchester High School*, p. 30.

The original scheme for the Godolphin Ladies' School, Salisbury (1707), provides that the "eight young gentlewomen" are to be taught to dance, work, speak French, cast accounts, and do the business of housewifery in the best manner. (S.I.C., Vol. XIV., p. 3.)

(2) S.I.C., IX., 301 (footnote). cf. *Edinburgh Review* (1810), vol. XXX., art. 3, "Daughters are kept to occupations in sewing, patching, mantua-making and mending. A century ago the taste was for housewifery, now it is for accomplishments."

of their daughters and serious learning was widely regarded as a positive defect in women.[1]

Miss Emily Davies, writing about 1865, says: "The ideal presented to a young girl is to be amiable, inoffensive, always ready to give pleasure and to be pleased."

Miss Cobbe in her Autobiography describes one of the fashionable Girls' Schools in Brighton about 1850. The fees were £500 a year, and the work continued all through the day. During the one hour's walk in the open air French, German, and Italian verbs were recited. For the remainder of the day the girls were reading or reciting one of these languages or practising accomplishments. The main aim was social display. Music, Dancing and Calisthenics counted highest in the scale of subjects, Writing and Arithmetic lowest. The pupils were allowed to speak English only after 6 in the evening. Miss Anne Clough in Macmillan's Magazine for October 1866 gives the following description of the curriculum in ordinary girls' schools for the lower middle class :—"A few dry facts are taught, but the life and spirit are too often left out and there is a monotony in girls' education which is very dulling to the intellect."[2]

The ideas current in regard to girls' education may be judged from the fact that Miss Beale, when appointed as mistress in the Clergy Daughters' School at Casterton in 1857, was expected to teach Scripture, mathematics, geography, English literature and composition, French, German, Latin, and Italian.[3]

In general it may safely be said that the traditional education for girls up to about 1845 accentuated the differences between the sexes.[4]

([1]) Mrs. Gaskell, for example, told Sir Joshua Fitch that she did not consider it desirable for a girl to learn to concentrate her attention on one subject at a time (S.I.C., IX., 295, footnote). The inferior character of Girls' Schools in the Fifties is shown by the fact that it was found necessary to establish Secondary Schools to prepare pupils for entrance to Queen's College founded in connection with King's College in 1848, and to Bedford College founded in connection with University College in 1849.

([2]) *Memoir of Anne J. Clough*, by B. A. Clough (1897), pp. 112–113. There were, however, some excellent private schools in the fifties; *e.g.*, the school kept by Miss Sewell and described by her in *Laneton Parsonage*, 1846–8, and the school near Northwich (about 1859) described in Collingwood: *Life of Ruskin*, II., 48.

([3]) *Dorothea Beale*, J. E. Raikes (1908), Chap. III. This was the school described at an earlier stage by Charlotte Brontë in *Jane Eyre* (1845).

([4]) The Chancery schemes for the Howell School for girls at Llandaff (1853 and 1865) throw an interesting sidelight on contemporary ideas regarding education. The curriculum was to consist of religious instruction, the three R's, English Grammar, Geography, History, Music and Drawing, and such other subjects including languages as the Governors shall from time to time direct besides needlework, cutting, etc. (S.I.C., Vol. XX., p. 151). Cf. the provisions regarding curriculum in the Charity Commissioners' Schemes in the last two decades of the 19th century, *e.g.*, the Scheme of May 6th, 1886, for the Godolphin School, Salisbury, which provides for instruction in the following subjects :—Reading and writing; geography and history; English grammar, composition and literature; arithmetic and mathematics; Latin; at least one modern foreign European language; one or more branches of natural science; needlework, domestic economy and the laws of health; drawing, drill, and

The new movement for the higher education of women which we now pass on to describe tended to assimilate the education of the two sexes.

The movement for the higher education of Women.

(16) The movement for the better education of girls and women may be said to have begun in 1843 with the foundation of the Governesses' Benevolent Institution, which was designed to provide a system of examinations and certificates for governesses. This led directly to the establishment of lectures for them, and so to the foundation of Queen's College, Harley Street, in 1848. It is clear from the early history of Queen's College that the leaders of the movement, such as the Revd. F. D. Maurice, took over the boys' curriculum which had been evolved during long years, and which they had themselves received and accordingly endeavoured to hand it on to the women whom they taught at Queen's College.

In a volume of introductory lectures delivered at Queen's College and published in London in 1849, the list of subjects is given as English, French, German, Latin, Italian, History, Geography, Natural Philosophy, Methods of Teaching, Theology, Vocal Music, Harmony, Fine Arts, and Mathematics. Each subject was taught by a specialist, who explained its purpose and principles.

Miss Beale and Miss Buss studied at Queen's College, and their ideas on girls' secondary education must have been largely moulded by the curriculum there, and by that in vogue at Bedford College for Women, founded in 1849, and designed to stand in the same relation to University College, as that in which Queen's College stood to King's College. Two girls' schools were founded in the fifties, which long served as models for secondary boarding schools and day schools respectively—the Ladies' College at Cheltenham, established in 1853, and re-organised by Miss Beale in 1858; and the North London Collegiate School, founded as a Private School by Miss Buss in 1850, and re-organised as a Public School under a Trust in 1870. As these two ladies were pioneers of secondary education for women, and laid the foundations on which the existing curriculum in various types of girls' secondary schools is largely founded, it is important to understand their precise views on the proper curriculum of a girls' secondary school. Miss Buss, in giving evidence before the Schools Inquiry Commission in 1865, said she did not think that a girls' education should differ essentially from that of a boy in the same rank of life with regard to the subjects which were to be taught, though it was rather difficult to ascertain what was the proper education for a boy. In reply to a question whether she believed there was such a distinction between the mental powers of the two sexes as to require any wide distinction between a good education given to a girl and that given to a boy, she replied, " I am sure

girls can learn anything they are taught in an interesting manner and for which they have a motive to work."[1] In a letter to a lady in New Zealand written in November, 1868, Miss Buss says, "The routine of English has been considerably improved by the extension to girls' schools of the Cambridge Local Examinations (from 1865 onwards). It is impossible, I think, to over-rate the good already done in girls' schools by these examinations."[2] She considered that a second language was one of the necessary branches of education. "It is almost impossible to teach English well unless another language is studied with it, and that other language should be Latin or French or German." She herself had taught French, allowing no option, and, in the higher classes, Latin, with little or no option. She gives her views on the whole curriculum as follows :—

"After my many years of work, if I were now to found a school for what might be called the middle section (and, indeed, the upper section also) of the middle class, I should include all I have mentioned, viz. :—English thoroughly, with Elementary Science in courses such as I have alluded to, French, Latin, bold outline drawing, careful part-singing, *plain* needlework, and thorough arithmetic, with geometry and algebra in the higher classes. I would rigidly and entirely omit all arrangements for teaching instrumental music, which I believe to be the bane of girls' schools, in the time wasted and the expense entailed. I have omitted, I see, harmony, by which I mean the laws of musical construction, an interesting, and, in an educational point of view, a most useful subject for mental training. Instrumental music—the piano chiefly—might fairly be left to a private teacher, as might dancing also. No school ought to omit *physical training*—that is, Calisthenics or something equivalent."[3]

(17) The Cheltenham College for Young Ladies was opened in November, 1853. The original prospectus, a facsimile of which is appended to Miss Raikes' Life of Miss Beale, describes the regular course of study as including Holy Scripture and the Liturgy of the Church of England, the principles of Grammar and the elements of Latin, Arithmetic, Calisthenic Exercises, Drawing, French, Geography, History, Music, and Needlework. German, Italian and Dancing might be taken as extras. Miss Beale, who was appointed Principal in 1858, gave detailed information regarding the curriculum in her evidence before the Schools Inquiry Commission in 1866. French was taught throughout the School, and German was begun about the middle of the course. Latin was only taught in exceptional cases, as Miss Beale considered that two languages were as much as could in ordinary cases be done well, and that German could take the place of Latin inasmuch

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(1) S.I.C., Vol. V., ii., p. 254, Q. 11,470 foll.

(2) She told the Schools Inquiry Commission in 1865 that very much more attention had been paid to Arithmetic since the Cambridge Local Examinations had been established (Q. 11,457).

(3) Ridley : *Life of Frances Mary Buss*, pp. 201 foll.

as it had a complicated grammar.[1] The average duration of studies was about four hours a day, and the studies were varied so as to take light and heavy lessons in alternation. On the whole Miss Beale approved of teaching modern languages rather than classics, as she held that in the present state of education it would be hard to force women into a new channel suddenly. She attached great importance to the study of English Literature, and gave unusual prominence to History teaching. Elementary Mathematics were very carefully taught at the Ladies' College. In Euclid the girls were allowed to use a book for enunciations only. In Arithmetic no books were used. Physical Science consisted of Physical Geography and very elementary Mechanics. Hydrostatics and Botany were taught, and elementary courses of lectures were given on Astronomy, Optics, and Electricity. When asked for opinion in regard to the admission of girls to the University Degrees Miss Beale replied as follows :—"It seems to me that our opinions are so divided at present as to the modifications that will be introduced into boys' education, that I should regret to see anything done hastily to assimilate girls' education to that which perhaps may be altered for boys; but at the same time I think it is good for boys and girls to have similar tastes, that their minds may not be entirely bent in different ways so that in after life they should understand and be interested in the same things."[2] In regard to Mathematics Miss Beale said that she did not think that the Mathematical powers of women enabled them to go generally so far in the higher branches as boys. In a written memorandum appended to her evidence she states, "For some years I pursued Classical and Mathematical studies with my brothers, going through the course of studies at Merchant Taylors'." She preferred the system by which French was taught first, and no other foreign language taken until considerable familiarity had been gained with French. Next German was taken. The classics formed indeed a key to modern tongues, but, on the other hand, modern languages led up to Latin and Greek, and therefore she believed this system was equally logical and answered better with girls.[3] On the whole Miss Beale in her actual practice was much under the influence of the tradition of boys' Public Schools in regard to curriculum, and she attached special importance to the study of the humanities—"language and literature, history and art, ethics, religion and philosophy."

Thus the theory of the emancipation of women seemed to work out on a theory of imitation. Basing their policy on the

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(1) S.I.C., Q. 11,473. The view constantly recurs in the evidence given to the Schools Inquiry Commission by different witnesses that the main object of teaching languages, such as Latin and German, was to give mental training rather than positive knowledge.

(2) S.I.C., Vol. V., Question 16,163; cp. Questions 16,164 and 16,165 and Raikes' *Life of Dorothea Beale*, Chap. VII.

(3) *Ibid.*, Vol. V., ii., p. 738.

belief that girls could equal boys, at least in intellectual matters, if favourable conditions were afforded, the leaders of the movement implicitly assumed that what had been done for and by boys was in general suitable for both sexes. On the other hand Miss Beale retained the old world "accomplishments" in her school and recognised the importance of art. It is well known that she corresponded with Ruskin and sought his advice in regard to Art teaching.

(18) A small Committee of ladies interested in education, formed in 1862 with Miss Emily Davies as Secretary, had secured the concession in 1863 that girls should be allowed unofficially to take the papers of the Cambridge Local Examinations. In 1865 the practice was given an official trial for three years, and in 1868 it was accepted permanently. It thus came about that the Cambridge Local and similar external examinations exercised an important influence on the development of the curriculum in girls' schools in the latter part of the century. Miss Davies in her evidence before the Schools Inquiry Commission in 1865 stated that the subjects most taken by girls for examination were Religious Knowledge, English and French, but that the senior students also took up every subject that might be taken by boys except Greek and Applied Mathematics. Thus almost from the beginning preparation for examinations was a salient feature of the new schools for girls (i) because the admission of girls and women to public examinations came at the crucial moment of reform; (ii) because preparation for examinations was the actual cause of the foundation of certain educational institutions for women, for example, Queen's College and Newnham College; (iii) because in the eyes of the world at large, and also of many pioneers of women's education, the capacity to pass examinations was the sole criterion of the educability of girls; (iv) because examinations seemed to offer a "motive for girls to study and for their parents to keep them at school."[1]

The views of the Schools Inquiry Commission (1868) on Girls' Education.

(19) The Report of the Schools Inquiry Commission (1868) summarised the existing condition of girls' education as follows :—

"It cannot be denied that the picture brought before us of the state of Middle-Class Female Education is on the whole unfavourable."

"The general deficiency in girls' education is stated with the utmost confidence, and with entire agreement, with whatever difference of words, by many witnesses of authority. Want of thoroughness and foundation; want of system; slovenliness and

(1) Compare Miss Buss' description of the general defects in the existing education of the daughters of the middle class in London, "In the first place there are scarcely any good schools, in the next place there are very few good teachers, and in the third place there is no motive offered to the girls for study nor to their parents to keep them at school." (S.I.C., Q. 11,527.)

showy superficiality; inattention to rudiments; undue time given to accomplishments, and those not taught intelligently or in any systematic manner; want of organisation,[1]—these may sufficiently indicate the character of the complaints we have received, in their most general aspect. It is needless to observe that the same complaints apply to a great extent to boys' education. But on the whole the evidence is clear that, not as they might be but as they are, the Girls' Schools are inferior in this view to the Boys' Schools."

The Commissioners then comment in detail on the character of the instruction given in the various subjects then taught in girls' schools, which were as follows:—Religious Knowledge, Physical Science, which at that time was nowhere taught systematically, Astronomy, which was, needless to say, not well taught, Mathematics, which were not much in use and were not carried far, Classics, Social Science or Political Economy, French, Music, Needlework, which was reported to occupy too much time and to be too ornamental in character, and Physical Exercises, which at that time were almost confined to Calisthenics.[2]

The Commissioners' views on differentiation of curriculum for boys and girls.

It is interesting to note that the question underlying the present Reference was considered in two aspects by the Schools Inquiry Commission. They put the question whether girls have similar though not necessarily equal capacity for intellectual attainments with boys, and secondly, if they had, whether it followed that their training should be the same. "The state of society and the need for some peculiar culture in their case may necessitate modifications, and there may of course be important differences in degree if not in kind." On the first question the Commissioners thought there was weighty evidence to show that the essential capacity for learning was the same, or nearly the same, in the two sexes. This was the universal and undoubted belief throughout the United States; and it was affirmed by many of the best authorities who had given evidence before the Commission. Mr. Fearon, for instance, and the teachers whom he had consulted in Scotland, where co-education then as now prevailed,[3] held that the difference was physical rather than mental, and that as to the mind it amounted to little more than a greater power of endurance in boys. The Commissioners, however, were inclined to believe that there was a practical difference to be observed in degree and in time; that while the foundation, the main and leading elements of instruction, should be the same for both sexes, and ample facilities and encouragement, far more than then existed, should be given to women who might be able

(1) *cf.* Mrs. Ewing's description of a Girls' school in the Fifties in *Six to Sixteen.* (1875.)

(2) S.I.C. *Report*, Chapter VI. *passim.*

(3) It should, however, be mentioned that some of the largest schools in Edinburgh and Glasgow are not co-educational, *e.g.*, Glasgow High School for Boys and the Ladies' College, Edinburgh.

and willing to prosecute such fundamental studies to a higher point, the complete assimilation of the education of the sexes, such as prevailed in America, should not be attempted. After this statement of their view of the differences in degree, the Commissioners go on to summarise differences in detail as follows: "It must be remembered, in dealing practically with the question, that it is only on the whole, and balancing one quality against another, that we can speak of the equal intellectual capacity of the sexes. Many differences, such as the tendency to abstract principles in boys contrasted with the greater readiness to lay hold of facts in girls—the greater quickness to acquire in the latter with the greater retentiveness in the former—the greater eagerness of girls to learn—their acuter susceptibility to praise and blame—their lesser inductive faculty—and others, are dwelt on by our witnesses."[1]

The causes which appear to have led to the assimilation of the Girls' Curriculum to that for Boys in the period 1850–1870.

(20) The main causes of the assimilation of the girls' curriculum to that of the boys in the fifties and sixties of the nineteenth century may be summarised under three main heads; humanistic, vocational, and economic. All these implied the taking over of the existing system of education for boys as nearly as was possible or convenient, and the degree of processes of assimilation varied according to the character, practice and principles of the pioneers.

(i) *Humanistic considerations.*

The founders of Queen's College, and indeed all the early leaders of the women's movement, constantly emphasised the idea of women's education as liberal and humane. The Assistant Commissioners, who reported on women's education for the Schools Inquiry Commission, 1868, recommended for girls' schools the same subjects as were taught in boys' schools. Bryce, for example, wrote, "It would be better to lay more stress upon Arithmetic, to introduce Mathematics everywhere, and Latin where there is a clear prospect of girls being able to spend four hours a week upon it for three years. And as in boys' schools, provision should be made for the teaching of Natural History and the elements of some branch of Natural Science." He suggested that the elements of Logic and Political Economy should be taught in the higher classes of girls' schools. He concludes, "The thing most needed to get rid of is that singular idea concerning girls' education by which parents are at present governed, and to make them believe that a girl has an intellect and that it was meant to be used and improved." In the same way Dr. George Butler, of Liverpool, writing on the higher education of women in 1867, said, "Women are the one half of society, and society cannot afford to leave one half of its members imperfectly

(1) S.I.C. *Report*, pp. 553–4.

educated. Nature has given to girls equal capacities with boys for acquiring the greater part of that knowledge which is comprised in our highest education."

(ii) *Vocational considerations.*

The vocational idea was clearly enunciated at the very beginning of the movement by F. D. Maurice in his addresses at Queen's College, and by Miss Beale in her addresses to her girls and in her public statements in early days about the aim of the Ladies' College. The idea of the new education was to prepare women for their natural vocation in the world, as mothers of families, as social workers, as the companions of men and as teachers. F. D. Maurice said: "Every lady is and must be a teacher of some person or other, of children, sisters, the poor." He believed that the best preparation for the special vocation of women was to open to them the studies which prepared men to enter on public and professional work. "By this same discipline in elements and this same study of what is homely and substantial rather than what is elaborate and artificial we can best hope to form real and effectual teachers." Miss Emily Davies repeatedly alludes to women's vocation for social work: "Whether as mistresses of households, mothers, teachers, or as labourers in Art, Science, Literature, and notably in the field of philanthropy so largely occupied by women, their work suffers from the want of previous training." Thus, the pioneers of the movement for women's education had always in view the vocational side, but, as the movement at that time was essentially middle class, they modelled the curriculum for girls on the existing middle class conception of a "liberal" education for boys. In particular one constantly notices in contemporary statements by the leaders of the women's movement and in the Report of the Schools Inquiry Commission the tendency then so prevalent to advocate the teaching of certain subjects, such as Latin, German and Mathematics, which were supposed not to be peculiarly congenial to girls, on the ground that they afforded a good mental discipline and an effective means of training the mental faculties.

(iii) *Economic considerations.*

The aim of education as fitting women to earn a living[1] was strongly emphasised by Miss Buss and in the writings of Miss Emily Davies, who, for example, urged the value of medicine as a profession for women which would of course imply the course of study and of practice necessary for the M.B. or M.D. degree, "not a lower standard of medical skill or easier examinations but that women should be allowed in medical schools of their own to acquire such knowledge as would enable them to pass

(1) *cf.* S.I.C. *Report* (1868), p. 546, quotation from Lord Lingen's evidence. (Q.13,154). "If one looks to the enormous number of unmarried women in the middle class who have to earn their own bread . . . it seems to me that the instruction of the girls of a middle class family is important to the very last degree." *cf.* the article on *Women in Industry* in "*Edinburgh Review*" (1859), vol. ccxxii., article 1.

the examinations and acquire the skill now thought necessary in the case of men." The same idea of identity of standard is enunciated by Miss Buss, who, as we have shown, encouraged her girls to sit for the Cambridge Local Examinations, and at a later stage, if they showed special ability, to work for the London degrees. Dr. Butler, of Liverpool, in 1867 urged similar arguments, especially in reference to teaching. The idea constantly recurs in the writings and work of the pioneers of women's education in the sixties that it was necessary to show by identity of curriculum and examinations that women could do as well as men if they were to secure opportunities of earning a living in professional work. It is noticeable that even at the present time there seems to be considerable apprehension among many friends of the women's cause at any suggestion of differentiation in curriculum, lest women should find the doors closed which have only just begun to open the way to economic independence.

Development of Girls' Education after 1868. The High Schools.

(21) The serious defects of girls' education in general as described by the Commissioners of 1868 go far to explain how it came about that the pioneers, such as Miss Buss and Miss Beale, infused the ideal of thoroughness and accuracy, and advocated the study of Latin and Mathematics to this end. For example, Miss Todd, in her work on " the Education of Girls of the Middle Classes " (1874), writes, " Mathematics offers peculiar advantages for the correction of the mental errors to which the neglect of real culture has made women liable." The chapter on girls' education in the Commissioners' Report (1868) produced a profound impression on public opinion. The Endowed Schools Act, 1869, made it possible to apply part of the funds of Educational Trusts to girls' education.[1] In 1869 the Cambridge Higher Local Examination[2] was instituted, and the need of

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([1]) In 1868 there were only about 14 Endowed Secondary Schools for Girls (S.I.C. *Report*, p. 565). In 1897 there were 86 Endowed Schools for Girls, containing 14,119 pupils, and 31 Endowed Schools for Boys and Girls, containing 3,035 pupils. (C.—8634 (1898)). *cf.* 42*nd Report of Charity Commissioners* (1895), p. 12. " As to one particular branch of Educational Endowments, namely, that for the advancement of the Secondary and Superior Education for Girls and Women it may be anticipated that future generations will look back to the period immediately following upon the Schools Inquiry Commission and the consequent passing of the Endowed Schools Acts as marking an epoch in the creation and application of endowments for that branch of Education similar to that which is marked, for the Education of Boys and Men, by the Reformation." *cf.* also Mr. D. C. Richmond's evidence in *Report from the Select Committee of the House of Commons on the Endowed Schools Acts* (H.C. 191 (1886)), pp. 1–16.

([2]) This examination was originally intended for girls after they had left school, but was in practice taken to a considerable extent by the Higher Forms of Girls' Schools. It was used by girls as an avenue to the University and had this advantage from their standpoint that it could be taken piecemeal and that no Greek was required. It is interesting as being one of the very few examinations at that period which was from the first designed primarily for girls and women. (Consultative Committee's *Report on Examinations in Secondary Schools*, p. 369).

preparing women for it led to the foundation of Newnham College (1871).[1] In 1869 London University established a general Examination for women with more advanced special papers. In 1870 girls were admitted to the Oxford Local Examination. In 1871 the National Union for the Improvement of the Education of Women of all Classes was founded, whose chief aims were to promote the foundation of cheap day schools for girls and to raise the status of women teachers by giving them a liberal education and a good training in the art of teaching. To this end the National Union in 1872 formed the Girls' Public Day School Company, whose purpose was " to supply for girls the best education possible, corresponding with the education given to boys in the great Public Schools." The Company established, first in London and later in other large towns, a number of excellent schools whose curriculum was largely modelled on that of the North London Collegiate School.

The growing recognition of the claims of Natural Science, to which public attention was directed by the Report of the Royal Commission on Scientific Instruction (1875),[2] led to the gradual introduction of Natural Science, especially Botany, into Girls' Schools; and the increasing attention to questions of health and physical development aided the introduction of Physical Training into these schools. Head mistresses were therefore, even in the seventies, compelled to consider the congestion of studies; and the more liberal education which they themselves had received in the Women's Colleges, fortified by the professional spirit which from the first marked their activities, enabled them to arrive at a working solution of the problems involved. The curriculum was made more educative and more manageable by the recognition of diversity of aptitudes in the pupils and by a corresponding arrangement of studies, while a common basis of indispensable subjects was retained in the lower part of the school. The high schools were unfettered by the traditions and prejudices which obsessed the older endowed schools, and the mistresses were more receptive to new ideas, more critical and more ready to adapt themselves to changing circumstances. Reforms in curriculum and in methods of teaching were readily accepted. Manual work was introduced at a relatively early date, and mistresses were quicker than masters to recognise the claims of less gifted pupils. The rapid development of girls' education in the seventies is marked by the permission, accorded in 1876, for girls to take the examinations of the Oxford and Cambridge Joint Board, established in 1873. The Maria Grey Training College for women teachers in Secondary Schools was founded in 1878; London University opened all its examinations and degrees to women in 1878; Cambridge opened its Triposes to them in 1881, and in 1884 Oxford allowed women

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(1) Girton College, founded at Hitchin in 1869, was removed to Girton n 1873.

(2) See page 20 *ante*. § 13.

to sit for examinations in certain of its schools.[1] The earliest Colleges for women at Oxford date from 1879. The new Universities from the first made no distinction of sex in respect of teaching, emoluments, or degrees.

The curriculum in high schools and Endowed Schools for Girls up to about 1900.

The curriculum in use in 1878 at the Manchester High School (founded in 1872) may be taken as typical of a good High School at that period. Girls in the sixth form studied English Grammar and Literature, French, Geography, History, Latin, Mathematics, and German (from which a few girls were exempted), and Drawing and Harmony were taken by most girls. Singing, Pianoforte playing, and Political Economy were each taken by a few pupils. Greek was probably as a rule only studied by those who were going to Oxford or Cambridge, and a custom early grew up in Girls' High Schools of making German alternative to Latin. There was always also a considerable number of girls who did not take Mathematics. At the North London Collegiate School a short intensive course on Political Economy and the laws of health, with some teaching of Domestic Economy, was given at a special period of the year. In the teaching of Natural Science girls' schools up to 1904 were as a rule behind boys' schools, as the ordinary High School had no funds to provide expensive laboratories. Moreover girls at that time had not the same practical reason for studying Natural Science as boys had, nor did the influence of the grants of the Science and Art Department to the Organised Science Schools affect girls' education in the same way. In some schools, however, such as the North London Collegiate School, and the King Edward VI. High School at Birmingham, much time and attention were devoted to Science towards the end of the century. Botany was popular in many schools and was considered suitable for girls, the more so as it did not involve any expensive equipment. At the Manchester High School in 1898 Chemistry and Physics were taught, but not to any great extent, as the head mistress was doubtful of their value and especially of the "heuristic" method of teaching which was then fashionable. At that time Botany and Latin were alternatives in the middle forms of the School, and Physical Geography was included among the Sciences.

The Newer Boarding Schools for Girls.

(22) A fresh phase in the process of assimilating the girls' curriculum to that for boys was marked by the rise of the more

(1) Honour Moderations and the Final Schools of Mathematics, Natural Science, and Modern History. Between 1888 and 1894 women were admitted to the remaining examinations for the B.A. and also to the examinations for the B. Mus. and D.Mus.

modern boarding schools for girls, which reproduced in almost all respects the arrangements in vogue at boys' public schools. The first school of this type, which served as a model for similar schools in England, was St. Leonards School, founded at St. Andrews in 1877. Though influenced by the example of Cheltenham, it contained from the first some entirely new features. It is not merely a day school with boarding-houses attached; the various Houses form an integral part of the school, and each House Mistress is one of the staff, her work being divided between the School and her House. The playground for outdoor games, which have been from the first a prominent feature of the curriculum, belongs to all pupils alike, day-girls and boarders. Lessons are done in the morning, while the afternoon and evening are devoted to preparation. Afternoon work is compulsory like morning school, but it devolves on the girls themselves to see that the work of preparation is properly done. Girls of responsible age are placed in charge of their Form rooms, just as they are in charge of the playground. Afternoon preparation takes place in the Form rooms of the School, and evening preparation in the schoolrooms of the Houses. Thus St. Leonards and boarding schools of a similar type in England, while retaining the ordinary subjects of study in girls' schools, have also adopted other subjects from the boys' curriculum as well as the whole public school plan,—the House system, the Prefects, House games, and colours—and have thus developed a particular kind of tradition and of *esprit de corps*. The ideals fostered in these schools are being widely spread by mistresses and old pupils who are now teaching in High Schools and County Municipal Schools.

Physical Training, Games, and Craft Work in Girls' Schools.

(23) In the sixties calisthenics was associated with dancing, which had always formed an element in girls' education. Miss Beale, in giving evidence before the Schools Inquiry Commission, described the arrangements for Physical Exercises at Cheltenham Ladies' College in 1865 as follows :—

> "The vigorous exercise which boys get from cricket, &c., must be supplied in the case of girls by walking and calisthenic exercises, skipping, &c. We have a room specially fitted up with swings, &c. It is to be wished that croquet could be abolished; it gives no proper exercise."[1]

The transition from calisthenics in girls' schools to carefully organised formal gymnastics, usually on the Swedish system, often practised, under the supervision of a woman doctor, has been natural and easy. The training of physical instructors for girls' schools, like that of the teachers of other subjects, was early put on a systematic basis, and a number of Physical Training Colleges for Women were established of which the first

(1) S.I.C., Vol. V., part ii., p. 740.

was the Bergmann-Österberg College at Dartford, founded in 1885. Swimming was encouraged in girls' schools from about 1865.

Games did not form part of the original tradition, but were introduced by the younger mistresses from the women's Colleges at Cambridge, Oxford, and London from about 1885. Drill was considered a necessary safeguard before girls were allowed to undertake the more vigorous games. As we have already indicated, St. Leonards School was one of the first schools to lead in this matter, and its example was followed by Roedean (founded in 1885) and other schools in England.[1]

Towards the end of the last century housecraft[2] was introduced into the curriculum for older girls in some schools, and improvements in the methods of teaching Art and Music were introduced. In addition to Sewing, which had always formed part of the traditional curriculum, crafts of various kinds, such as embroidery and book-binding, were introduced in some schools, especially as alternative subjects for so-called backward girls.[3]

The Welsh Intermediate Schools.

(24) The system of Secondary Schools set up in Wales under the Welsh Intermediate Education Act, 1889, marks an important phase in the evolution of the curriculum. The Act defined intermediate education as including instruction "in Latin, Greek, the Welsh and English Language and Literature, Modern Languages, Mathematics, Natural and Applied Science, or in some of such studies and generally in the higher branches of knowledge."[4] Many of the new Intermediate Schools were dual schools, which rapidly evolved into co-educational day schools. Designed to link up the elementary schools with the three Welsh University Colleges, they were from the first largely recruited from the Elementary Schools.[5]

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(1) Burstall & Douglas, *Public Schools for Girls* (1911), *passim*, and papers by Mrs. Woodhouse and Miss P. Lawrence in *Special Reports on Educational Subjects*, Vol. 2 (C.—8943, 1898).

(2) Domestic subjects other than Needlework were taught in some of the High Schools and Endowed Schools for Girls in the Eighties and Nineties, *e.g.*, at the Godolphin School, Salisbury, Milton Mount School, Gravesend, and King Edward's High School for Girls, Birmingham (as from 1895).

(3) Burstall & Douglas, *Public Schools for Girls* (1911), Chap. xvi.

(4) Section 17 of 52 and 53 Vict., c. 40. *cf.* The definition of instruction other than elementary instruction in reading, writing and arithmetic in the Education (Scotland) Act, 1872 (35 and 36 Vict. c. 62, § 62): "instruction in Latin, Greek, Modern Languages, Mathematics, Natural Science, and generally in the higher branches of knowledge." *cf.* also Technical Instruction Act, 1889 (52 and 53 Vict. c. 76, § 8).

(5) See the account of the curricula in use in the schools in 1898 in the article on the origin and working of the Welsh Intermediate Education Act, in Vol. 2 of *Special Reports on Educational Subjects* (Education Department) (C.—8943) pp. 42–43 and 53–56.

The attitude of the State towards Secondary Education in England from 1869 to 1899.

(25) From 1869 to the passing of the Board of Education Act in 1899, State supervision of Secondary and quasi-secondary education was exercised by three bodies—the Endowed Schools Commission, established in 1869, whose work was continued after 1874 by the Charity Commission; the Education Department; and the Science and Art Department.

The new schemes prepared for Endowed Schools for boys and girls by the Endowed Schools Commission (1869 to 1874), and the Charity Commission, (1874 to 1902), frequently contained clauses regarding curriculum and external examinations, and did much to liberalise the courses in such schools[1] and to introduce some measure of differentiation in the curriculum for girls' schools.

Some of the Schools set up under the Elementary Education Act of 1870 developed with the support of the Education Department into quasi-secondary schools, known as Higher Elementary or Higher Grade Schools.[2]

These schools, which as a rule contained girls as well as boys from Elementary Schools, had many of the good points of the Elementary School tradition, but owing to the influence of the Science and Art Department, whose grants they aimed at earning, they were inclined to concentrate unduly on Science and quasi-technical subjects, neglecting humane studies ancient and modern.[3]

The Pupil Teachers' Centres for boys and girls, established by many School Boards after about 1885, also provided an education which, though necessarily restricted in its purview, was largely Secondary in character.

After 1902 many of the Higher Elementary Schools and Pupil Teacher Centres[4] became Municipal Secondary Schools. Their development marks a highly important stage in the history of the girls' curriculum, as they have on the whole attached more weight to scientific and modern studies than the older types of schools for girls. Most of the co-educational day schools at present existing are Municipal Secondary Schools; and indeed the general expansion and democratisation of girls' secondary education has been chiefly brought about since 1902 by the development of these Schools, which are provided and maintained by the Local Education Authorities.

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(1) *cf.* Recommendation IV. (*b*) in 2*nd Report of R.C. on Technical Instruction* (1884) (C. 3981), I., 538.

(2) See the descriptions of the curriculum in use in these schools in *Final Report of the Commissioners appointed to inquire into the Elementary Education Acts, England and Wales* (1888), C.—5485 p. 168, and *Report of Royal Commission on Secondary Education* (1895) C.—7862, p. 54.

(3) Many of the less prosperous Endowed Schools also arranged Science Courses in order to earn the grants paid by the Science and Art Department to Organised Science Schools and Classes.

(4) See Report of Board of Education for 1903-4 (Cd. 2271), p. 49.

The Royal Commission (1895) and the Board of Education Act (1899).

(26) The administrative confusion resulting from divided control was largely responsible for the vague and confused popular conceptions of Secondary Education to which attention was directed in the Report of the Royal Commission on Secondary Education (1895).[1]

The Report contains some notable pronouncements on curriculum. It states that, while the classical languages were being taught more extensively than ever, the Secondary Schools also found a place for modern languages and literature, and that there was a remarkable growth in the teaching of certain physical sciences and in technical and manual instruction.[2]

In the opinion of the Commission, technical and secondary education did not differ as genus and genus, but as genus and species, an opinion which has not commanded general assent. The question of differentiation of curriculum for the sexes is not explicitly raised, but attention is drawn to two divergent views regarding the secondary education required by girls of the industrial class :—

> "In one view, practical utility is paramount: the girl is to be trained for domestic duties, as the boy is trained for some definite calling. In the other view, the first aim is a true education of the mind, for girl and boy alike; and the special requirements of the industrial classes should, as far as possible, be subordinated to that aim. It is not incompatible with the recognition of this principle that the girl, like the boy, should receive some special instruction in the subjects demanded by her special circumstances."[3]

The Commission recommended that one central Education Authority should be set up. This was effected by the Board of Education Act, 1899, which merged the powers of the Education Department and the Science and Art Department, and the powers of the Charity Commissioners over educational charities in the new Board of Education, which was authorised to inspect Secondary Schools. The control of the Board over Secondary education was largely increased by the Education Act, 1902, which empowered Local Education Authorities to aid Secondary Education and to provide new schools. Thus, historically, the State had approached the problem of Secondary Education from three quite different directions. First, as supervisor of educational trusts it had come to supervise the administration of Endowed Secondary Schools. Secondly, as promoter of Natural Science and of the instruction given in schools of Art, it came to exercise in

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(1) Report (C. 7862), p. 130 foll. *cf. Return of pupils in Public and Private Secondary and other Schools in England* (1898) (C. 8634), p. 7. It should be noted that women were included for the first time on the Royal Commission of 1894–5.

(2) This was partly due to the action taken by local authorities under the Technical Instruction Acts (52 & 53 Vict. c. 76 and 54 Vict. c. 4.).

(3) *Report*, p. 77.

regard to Secondary Schools that more detailed supervision associated with the payment of State grants. Thirdly, the Board of Education Act of 1899, which combined the first two functions in one Department, vested it with power to inspect Secondary Schools as the central and official Department of State for Education.

The Policy of the Board of Education in regard to Differentiation of Curriculum since 1902.

(27) The history of the Board since 1902, as set out in successive Annual Reports and in the Regulations for Secondary Schools, shows that year by year the effect of Parliamentary Grants on the schools has been carefully weighed and considered; and, that when Grants have been found to disturb the balance of the curriculum by attracting it overmuch, for example, towards Natural Science, or again towards premature or excessive specialisation, the form of grant or its amount has been varied in order to restore an equilibrium.[1] The general situation of secondary education in 1902 seemed distinctly unpromising. The instruction provided in the smaller endowed schools was still at a low point of efficiency: not only were teaching staffs weak and lacking in adequate qualifications, but in general the curriculum was neither coherent nor liberal. A considerable number of the Higher Grade or Higher Elementary Schools,[2] taken over by local education authorities from school boards as secondary schools, had become so dominated by Natural Science as to imperil the wider conception of a liberal education. The Public Schools and the girls' schools corresponding to them held aloof from the Board and from other schools, and their curricula exercised little or no influence outside their own precincts. In the light of the data collected by their new Secondary Inspectorate, after a series of systematic inspections of Schools of different types, the Board in 1904 abolished all grants for individual subjects, merging them in a main single grant for an approved four years' course, covering the period from 12 or 13 to 16 or 17 years of age and they issued new Regulations for Secondary Schools for 1904–5 which define the term "Secondary School," and describe the aim of the curriculum. These Regulations applied to boys' and girls' schools and to "mixed" or "dual" schools.[3]

A Secondary School is defined as a day or boarding school offering to each of its scholars up to and beyond the age of 16 a general education, physical, mental, and moral, given through a complete graded course of instruction, of wider scope and more advanced degree than that given in elementary schools. The

(1) *cf.* Board's *Report for 1906* (Cd. 3270), paragraph on relationship between State control and individual initiative.

(2) Some of the Technical Institutes were converted at this time into Secondary Schools. Board's *Report for 1906* (Cd. 3270), p. 55, and § 2 of Prefatory Memorandum to *Secondary School Regulations*, 1907 (Cd. 3592).

(3) *Regulations for Secondary Schools*, 1904-5 (Cd. 2128), pp. 6 and 13.

Regulations also define the aim of the curriculum by requiring that a Secondary School must offer at the least a full four-year-course, providing instruction in a group of subjects so selected as to ensure due breadth and solidity in the education given. These subjects were defined as—

1. The English Language and Literature, together with Geography and History.
2. At least one Language other than English.
3. Mathematics and Science both theoretical and practical, and
4. Drawing.

For girls, Housewifery must be provided in the course, and for both boys and girls some provision must be made for manual work and for Physical Exercises. The object of these rules was "to ensure a certain measure of breadth and richness in the curriculum of Secondary Schools, and to provide against Schools recognised under that name offering only an education which is stunted, illiberal, unpractical or over-specialised." The Board explained that with the growth of educated public opinion it might be possible, and wherever it became possible, it was highly desirable, "to relax these requirements in schools of tested efficiency, and to leave them a larger freedom in devising and executing schemes of education of their own."[1]

(28) In the Prefatory Memorandum to the Regulations for 1905-6 the Board pointed out that the circumstances and requirements of Girls' Schools by the nature of the case differed materially from those of schools for boys. In view of this fact the Board had allowed a greater elasticity in girls' schools in regard to the time to be devoted to particular branches of the curriculum.[2] The question whether the total amount of instruction in girls' schools should normally be about the same as that given in boys' schools, or, if not, what should be the degree of variation, was one on which there was much divergence of opinion. "As a matter of fact, however, the claims made on a girl's time out of school hours are larger and more various than is the case with boys, and the risk of overpressure at that age much greater; while at many Girls' Schools it is not practicable to have the regular afternoon meetings which are a matter of course in a Boys' School." The Board accordingly provided that special attention should be paid to such cases, and that the normal requirements in regard to the amount of time given to various subjects should be relaxed according as the circumstances might indicate.[3] In their Report for 1906–7 the Board explained that in view of the development of their system of inspection of Secondary

(1) Board's *Report for 1905–6* (Cd. 3270), p. 46.
(2) Cd. 2128, pp. 13-14.
(3) At that period (1905–1906), the Regulations prescribed a minimum time to be allowed to certain subjects. This arrangement was abandoned in 1906.

Schools, they had decided not only to merge in the general curriculum for the whole school the four-year course which had alone in previous years been the basis of grant, but also to abolish the rule under which, in each year of that Course, a certain definite minimum of time had to be devoted to certain subjects or groups of subjects.[1] Accordingly the Regulations for 1907, which are substantially the same as those now in force, prescribed that "the arrangement of work must provide for due continuity of instruction, for an adequate amount of time being given to each subject taken, and for the disallowance of subjects which are not of educational value and of time spent on them which is in itself excessive, is insufficient to admit of effective progress, or is such as to interfere with proper instruction in other subjects." Further elasticity was given to the organisation of schools by the provision that Physical Exercises and Manual Work should be elements duly considered in the whole curriculum instead of being definitely prescribed for certain years; and "in order to emphasise the importance of practical training for life in the case of girls," a provision was inserted allowing Science to be wholly replaced by an approved scheme of instruction in Practical Housewifery for girls over 15 years of age.[2]

As regards individual subjects, the Board early took into consideration both the actual state of teaching and the lines on which improvement should be sought. From 1904 onwards a special section of the Report has been frequently devoted to some subject of teaching, such as English, Geography, Science; and Circulars on the methods of teaching subjects in Secondary Schools—English, History, Modern Languages, Latin, Mathematics, Music and the like—have been from time to time issued. In this connection may be noted the founding of various Associations (largely composed of Secondary School teachers) in subjects such as Classics, Modern Languages, Science, English, History, and Mathematics. All these bodies have at least two aims in common—to secure for their subject its proper place in the curriculum, and to advocate all possible steps for the improvement of its teaching.

External Examinations.

(29) The Board's inspections of Secondary Schools from 1902 onwards disclosed a widespread feeling that examinations were overdone, leading to over-pressure and cramming; that they often set wrong ideals before schools and pupils; and that by their syllabuses and papers they frequently offered a great hindrance to improvements in method.[3] The schools themselves

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(1) Cd. 3862, p. 68.

(2) Cd. 3592 (1907), Articles 4, 7, 10, and Cd. 3862, p. 68. The present requirements in regard to curriculum are fully described in Chapter II.

(3) *cf. The Sacrifice of Education to Examination*, edited by Auberon Herbert (1889) (Williams and Norgate).

pointed out the restrictive effect of these tests on their methods and curricula, and the difficulties caused by the conflicting requirements of the various examinations, for which they were obliged to prepare their pupils. In 1904 the Board, with a view to remedying this state of affairs, inserted provisions in the Regulations prohibiting the presentation of pupils under 15 years of age without their sanction for any examination other than one for the whole school, or for scholarships; and in 1908 a fresh Regulation was introduced empowering the Board to require any school to submit such part of the school as they might think fit for an examination approved by them. In 1909 the Board referred the question of Examinations in Secondary Schools to the Consultative Committee, whose Report, issued in 1911,[1] substantially confirmed the conclusions at which the Board, in the inspection of the schools, had arrived. The findings of the Committee were mainly two :—

(1) That the presentation of young and immature pupils for external examinations was mischievous.

(2) That the various examinations were in need of co-ordination, and that, for ordinary purposes, each school should be connected with one examining body only.

The main problem was to reduce the number of examinations; to secure that their syllabuses should be suitable as an indication of the degree and kind of knowledge that might properly be expected of candidates in Secondary Schools at different stages of development and of various tastes and capacities; to secure a reasonable uniformity in the standard and method of awards in all examinations taken at the same age, and to arrange that examinations of similar standard should be accepted, under reasonable conditions, by Universities and professional bodies in lieu of their own preliminary examinations. The Consultative Committee recommended that, for the solution of the problem, application should be made to the University Examining Bodies. After prolonged negotiations the various Examining Bodies consented to modify their existing examinations in accordance with the Board's suggestions, or to set up examinations of the type desired. Fourteen examinations were accordingly re-cast or brought into existence between 1917 and 1919, of which seven —known as the First School Examinations—were for pupils of about 16, and seven—known as the Second School Examinations —for pupils of about 18. The former were general in character, and required that at least five subjects should be offered, one from each of three groups : English Subjects, Foreign Languages, Science and Mathematics. The latter were specialised examinations in one of three groups : Classics, Modern Studies, Science and Mathematics. In September, 1917, the Board set up the Secondary School Examinations Council as an advisory body to co-ordinate the standard of examinations and to secure that the methods of award were satisfactory.

(1) Cd. 6004.

(30) The improvement in the provision of Secondary education for girls in England and Wales since 1902 will be seen from the following statistics :—

	1904–5.	1907–3.	1913–14.	1921–22.
1. Schools on the Grant List.				
(*a*) Number of Schools for—				
(i) Boys	292	344	397	462
(ii) Girls	99	262	349	450
(iii) Boys and Girls	184	237	281	331
(iv) Total	575	843	1,027	1,243
(*b*) Number of Pupils—				
(i) Boys	61,179(1)	75,489	99,997	184,408
(ii) Girls	33,519(1)	63,617	87,650	176,207
(iii) Total	94,698	139,106	187,647	360,615
2. Schools *not* on the Grant List, but recognised as efficient.				
(*a*) Number of Schools for—				
(i) Boys	—	15	53	71
(ii) Girls	—	34	64	138
(iii) Boys and Girls	—	3	4	7
(iv) Total	—	52	121	216
(*b*) Number of Pupils—				
(i) Boys	—	3,513	13,618	21,765
(ii) Girls	—	5,236	8,928	22,373
(iii) Total	—	8,749	22,546	44,138
3. All Schools.				
(*a*) Number of Schools for—				
(i) Boys	—	359	450	533
(ii) Girls	—	296	413	588
(iii) Boys and Girls	—	240	285	338
(iv) Total	—	895	1,148	1,459
(*b*) Number of Pupils—				
(i) Boys	—	79,002	113,615	206,173
(ii) Girls	—	68,853	96,578	198,580
(iii) Total	—	147,855	210,193	404,753

NOTE.—(1) It will be observed from these statistics that Secondary Schools did not begin to be placed in large numbers on the Board's Grant List till 1907-8. It should be noted that many girls and boys are receiving an education of a secondary character in schools (more especially in private schools) which are not on the Board's Grant List nor on the list of schools "recognised as efficient." It should also be noted that in 1904–5 a large number of boys and girls (5,380 boys and 25,294 girls) were still receiving in Pupil Teachers' Centres an education of a secondary character.

	1913–14.	1921–22.
1. Number of Pupils of 16 years of age and upwards in Grant-earning Schools.		
(*a*) Boys - - - - - - - -	6,597	13,418
(*b*) Girls - - - - - - - -	10,047	18,859
2. Number of such Pupils per 1,000 of the total number of Pupils—		
(*a*) Boys - - - - - - - -	66·0	72·8
(*b*) Girls - - - - - - - -	114·6	107·0

The existing types of Secondary School.

(31) In the system of secondary education now existing in England, three main types of Secondary Schools may be distinguished.

(*a*) Since 1902 a large number of County and Municipal Secondary Schools have been established receiving the great majority of their pupils from the Public Elementary Schools. The education given in them is thus linked closely to that given in the Public Elementary School and most of the pupils enter these schools at the same age, having received the same preliminary training. When these schools were first established, the age of transference from the elementary to the secondary school was often as high as 13; now the free place scholars are transferred at the age of 12 and in some districts at the age of 11. Formerly the great majority of the pupils used to leave at about the age of 16, but now an increasing number remain to the age of 17 or 18, and Advanced Courses are provided in many of these schools.

(*b*) The second class may be grouped, as regards boys, under the head of "Public or non-local Schools," including some of the great Day Schools in London and other large towns. A large number of the pupils attending such schools receive their earlier education either in Junior Departments or in separate Preparatory Schools, the course of work in which is deliberately set with the object of making it a suitable training in preparation for the schools. Many of these schools, however, also contain boys who have entered them direct from Elementary Schools.

For girls the place of such schools is taken by the High Schools and the Girls' Endowed Schools, and to some extent by the large Boarding Schools of a semi-public character which have been established during recent years. A certain proportion of the pupils in the Girls' Day Schools have come from elementary Schools, but in general there is much greater variety in the previous education of pupils attending these schools than is found in those who enter the County and Municipal Secondary Schools. Many Girls' Schools of this type have Junior Departments or Preparatory Schools, but nevertheless a large proportion of the pupils entering them have either been educated by governesses

or in private schools of varying degrees of efficiency, the curriculum of which, in many cases, is not properly linked up with that of the secondary school proper. Owing to these considerations and to the fact that girls enter Secondary Schools of this type at different ages, ranging from 11 to 14 or 15, there is much greater inequality in the attainments of the younger pupils in such schools than in the corresponding boys' schools.

(*c*) The Aided Schools, largely consisting of old Grammar Schools many of which have been partly or wholly municipalised, are intermediate between these two types and approximate more or less closely to one or the other. While some of their pupils are admitted at the age of 8 or earlier, a varying proportion enter at about the age of 11 or 12 from Public Elementary Schools. The difficulties of organisation are in consequence very great owing to the varying standards of attainments among the junior pupils.

General Observations.

(32) It will be seen from the foregoing account that the girls' curriculum in its existing form is only about sixty years old, whereas the boys' curriculum represents the outcome of centuries of development.

In some respects the absence from girls' schools of old-established tradition has been a distinct advantage to girls' education, but it necessarily involves a corresponding diminution of that process of trial and error, which has furnished schoolmasters with an approximate standard of what is possible, and even with some indication of what is desirable, in the education of boys. While the experimental stage in the history of the modern curriculum may be regarded as tolerably complete in respect of boys, it is far from being so in respect of girls. The experiment has not yet been sufficiently prolonged to allow the formation of a public opinion of any weight. It would, therefore, be easy to make mistakes, if far reaching changes were made on the basis of an experience of girls' schools which has lasted little more than half a century.

In general it will be seen from this historical summary that although the modern conception of secondary education grows out of earlier, and even out of mediæval ideas, it has undergone such changes in the nineteenth century as constitute a revolution. For the moment it is settled; to-morrow it may again be fluid; but the great national system of Secondary Schools for boys and for girls stands now at a point where we may profitably ask: Should boys and girls study the same subjects in Secondary Schools? Should they study all subjects in the same way and up to the same standard? And if any different treatment is desirable, what should the difference be?

CHAPTER II.

THE CURRICULUM AT PRESENT IN USE, INCLUDING ALL SCHOOL ACTIVITIES, WITH SPECIAL REFERENCE TO THE EXISTING DIFFERENTIATION BETWEEN BOYS AND GIRLS.

PART I.—THE PRESENT OFFICIAL REQUIREMENTS IN REGARD TO THE CURRICULUM.

(33) In describing the curricula at present in use it will be convenient to deal in the first place with the general work done by pupils in Secondary Schools up to 16 years of age (the date at which the First School Examination is usually taken), and secondly with the arrangements for specialised education after 16, with special reference to Advanced Courses arranged under Chapter VIII. of the Board's Regulations for Secondary Schools, and to other specialised courses sanctioned by the Board. The official definition of a Secondary School runs as follows :—" In order to be recognised as a Secondary School within the meaning of the Board's Regulations for Secondary Schools a school must offer to each of its pupils a progressive course of general education as defined in Chapter II. of these Regulations (with the requisite organisation, curriculum, teaching staff, and equipment) of a kind and amount suitable for pupils of an age range at least as wide as from 12 to 17. The provision made for pupils below the age of 12 must be similarly suitable and in proper relation to the work done in the main portion of the school." Article 2 of the Regulations provides that a school will not be recognised for payment of grant unless—

(i) the pupils normally remain at least four years at school; and

(ii) the school-life of the pupils normally extends at least to the age of 16.

This definition of a Secondary School applies both to schools recognised for grant and to those schools which, though not in receipt of grant, are placed by the Board on their List of Schools recognised as Efficient under Chapter IX. of the Regulations.

(34) The official requirements in regard to curriculum, as set out in Chapter II. of the Regulations for Secondary Schools for 1921, may be summarised as follows :—

The curriculum must comply with certain conditions laid down with the object of securing proper attention to the cultivation of body and mind through physical training and games, bookwork, and the practical use of the pupil's faculties. It must in all cases make adequate provision for instruction in English Language and Literature, in History and Geography, in Mathematics and Drawing, in Natural Science (including

practical work by the pupils), and in at least one language other than English,[1] except in cases where the Board are satisfied that the instruction in English provides special and adequate linguistic and literary training and that the teaching staff are qualified to give such instruction.[2] It must also make such provision as the Board, having regard to the circumstances of the school, can accept as adequate for organised games, Physical Exercises, Manual Instruction, and Singing; and, as regards girls, it must include practical instruction in Domestic Subjects, such as Cookery, Needlework, Laundry-work, Housekeeping and Household Hygiene.[3] For older girls (over 15 years of age) Natural Science may be wholly or partially dropped, and Mathematics may be confined to Arithmetic, in order to make room for a fuller course in a combination of Domestic Subjects. The Board may require modifications in the curriculum or time-table if subjects are taught which are not of educational value, or if the time devoted to particular subjects interferes with proper instruction in other subjects, or if the time devoted to any subject is insufficient to allow of proper progress. Where special circumstances point to the desirability of greater elasticity, individual pupils or special classes may, with the approval of the Board, follow a curriculum varying from the curriculum approved for the rest of the school. In actual practice applications under this head are generally made on behalf of girls who desire to be exempted from Mathematics or Natural Science; but we understand that such applications are not so frequently made at the present time as they were in former years. Article 6 provides that the curriculum and the time analysis of the whole school must be approved by the Board and must be such as to ensure both due continuity of instruction in each of the subjects taken and the allocation of an adequate amount of time to each of these subjects. In practice the school authorities submit the draft syllabuses of work for the year to the Board for approval under Articles 6 and 34, and we understand that as a rule any well drafted syllabus is approved without substantial changes.[4] Thus each school has its own syllabus in every subject, and in practice there is great latitude. This arrangement constitutes a most important point of difference between our English system of Secondary education and most continental systems, such as the French and Prussian, which prescribe fixed annual

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([1]) Article 7 of the Regulations provides that "a curriculum including two languages other than English, but making no provision for instruction in Latin, will only be approved where the Board are satisfied that the omission of Latin is for the educational advantages of the school."

([2]) We understand that, in practice, there are very few schools in which the teaching of foreign languages is entirely omitted.

([3]) The Board have issued a series of pamphlets and memoranda dealing with methods of treating the different subjects of the curriculum. (*See* Appendix II.)

([4]) In drafting and revising syllabuses the school authorities frequently consult the Board's Inspectors.

programmes of work for the several classes in boys' and girls' schools of different grades.

The theory underlying these Regulations, which apply to the curricula of all Secondary Schools on the grant list, would appear to be that, subject to certain modifications to suit special cases, the Secondary School curriculum for boys and girls up to the age of 12 should be quite general, and that from 12 to 16 it should continue to be general. During this period some provision should be made, where possible, for certain observed tendencies of the pupils towards mathematical, scientific, or linguistic studies. It seems, however, to be assumed that no definite specialisation should be encouraged until the pupil has taken the First School Examination at the age of about 16. This distinction between the needs of pupils under 16 and those of pupils over 16 years of age is based on the fact that Secondary Schools have a double function. On the one hand they provide a general preliminary education for those who intend to enter professions or to engage in occupations which require a highly trained intelligence, and accordingly propose to continue their educational preparation for life to a comparatively late age. Many pupils of this type will pass from the Secondary Schools to the Universities Technical Colleges, and other places of higher education. On the other hand Secondary Schools are also responsible for the education of a very large number of pupils who will leave school at about the age of 16, and, having in view no further full-time education, will at once proceed to posts in offices, commercial houses, and factories, or will enter upon such occupations as farming and retail trade. In many schools these two groups of pupils must to a great extent be taught together, and one of the chief problems of school organisation is to arrange a common course of work suitable for both groups.

It seems to be implicitly assumed that girls' schools in addition to giving their pupils a general education should also give them some training designed to fit them for the duties of home life and of motherhood.

The types of differentiation provided for in the present Regulations.

(35) It will be seen from the foregoing account of the existing Regulations that the main differentiation for which they provide is the compulsory provision in girls' schools of practical instruction in Domestic Subjects (such as Needlework, Cookery, Laundry-Work, Housekeeping, and Household Hygiene), which are in practice generally substituted for the Woodwork and Metalwork taught in boys' schools. It is provided that for girls over 15 an approved course in a combination of Domestic Subjects may be substituted partially or wholly for Science and for Mathematics other than Arithmetic.[1]

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(1) Article 9 of the *Regulations for Secondary Schools* (1922).

In paragraph 12 of the Board's Circular on Curricula of Ruralised Secondary Schools, issued in 1914 (No. 883), it was pointed out that it was customary in such schools to provide courses in Housewifery, Cookery, and Laundrywork for the girls as an alternative to Manual Instruction and some of the outdoor work done by the boys. The Board suggested that such outdoor work as was done by the girls should normally include Gardening, and might also include a limited amount of instruction in a specialised technical subject such as Bee-keeping, Poultry-keeping, or Dairy-work.

The Board's attitude in regard to the Curricula of Girls' schools.

(36) The Board stated in para. 25 of their Circular on Curricula issued in 1913 (No. 826) that, apart from Article 9, it did not seem necessary to insert in the Regulations any special conditions affecting the curriculum of girls' schools, in view of the fact that the Regulations already allowed of great variations in the arrangement of the time-table and the organisation of work. They pointed out, however, that on certain points (such as the time of beginning foreign languages) many girls' schools adopted an arrangement quite different from that traditional in boys' schools, and they stated that the Board would at all times be prepared to give careful consideration to any suggestions made by experienced head mistresses for otherwise varying the curriculum to meet the needs of their schools.

In the same Circular the Board called particular attention to certain considerations affecting girls' schools. The tendency, to subordinate the aim of the curriculum, and of the school as a whole, to a minority of the pupils who were preparing for entrance to the Universities was even more to be deprecated in schools for girls than in boys' schools. The problem of the curriculum in girls' schools presented special difficulties of its own, of which the most important was the overcrowding of the time-table. This was due not only to the shorter time actually spent in school and to the more exacting claims made on the time of girls in day schools by the conditions of their home life, but also to the relatively greater importance attached to Music and Art and to those domestic subjects which could not properly be omitted from the education of girls, even where, either from choice or necessity, they sought to place themselves in a position of economic independence. It was also sometimes due to the inclusion of two foreign languages in the curriculum of girls whose secondary education was, in point of fact, limited to the years from 12 to 16, and who, in many instances, had entered a Secondary School indifferently prepared. The ill effects of attempting to teach too many languages concurrently were especially observable in those girls' schools which met only in the morning. In addition to these considerations, it had to be borne in mind that many of the examinations through which

admission was gained to institutions of higher education, or a qualification was obtained for occupations which some girls must of necessity enter, were still primarily based on the curricula of boys' schools, so that the danger of over-pressure in preparing girls for such examinations was considerable, especially in co-educational schools where boys and girls were taught side by side in the same classes. The Board pointed out that this danger might, to some extent, be avoided if it were recognised that girls might with advantage generally postpone such examinations to an age rather later than that which was usual for boys, and thus escape the risk of over-strain during the period of adolescence.

In a recent circular the Board explained their general attitude in regard to the girls' curriculum as follows :—

> "While the education of girls should be in no way inferior to that of boys, the educational requirements of boys and girls, like their capacities, are not identical. Girls' Schools, though their curricula are largely (perhaps too largely) modelled on those of Boys' Schools, have characteristic features which call for special treatment. Such subjects as Art and Housecraft may already be included among the additional subjects of any approved Course. But experience alone will show whether the existing Regulations are elastic enough to meet the special needs of Girls' Schools or whether it is desirable to provide alternative Regulations expressly framed in their interests. This is a matter to which the Board are giving careful attention, and to which they invite the attention of School Authorities."[1]

The tripartite organisation of Secondary Schools, especially Day Schools.

(37) The organisation of day Secondary Schools in England divides a school into three blocks, which may be called the Junior, Middle, and Upper Schools respectively. The Junior Department, which is of course absent in many Secondary Schools, takes its pupils up to the age of about 11 or 12, and ends at the point at which the free-place pupils from Elementary Schools begin to enter. The Middle School, from which the majority of the pupils leave at about 16, ordinarily covers the years from 11 or 12 to 16, and gives instruction up to the standard of the First School Examination. As a rule, Mathematics, Natural Science, and at least one foreign language are studied throughout this part of the school. After one year another foreign language or another branch of Natural Science may be added, and in classical schools Greek may be added after two or three years' study of Latin. The Upper School generally includes pupils from the age of 16 to about 18 or 19 and takes them up to the stage of the Second School Examination.

(1) Circular 1112 (1919) on Advanced Courses, § 7.

(A.) *Junior Departments.*

(38) Many Municipal and County Secondary Schools (whether co-educational schools or separate schools for boys and girls) have no Junior Departments, but admit the majority of their pupils at about 11 years of age—most of them direct from public elementary schools.[1] Such Departments often exist in endowed day schools for boys, but for boys' boarding schools of the "public school" type their place is usually taken by the Preparatory School. Junior Departments are also frequently found in High Schools and in endowed schools for girls, but a large number of girls still enter these schools from private schools of varying degrees of efficiency.[2] It would seem that many parents, especially in urban areas, who send their sons to the Elementary Schools, prefer to send their daughters to private schools, before sending them on to a Secondary School. Thus the previous preparation of a considerable proportion of the girls entering Secondary Schools has frequently been neither so systematic nor so thorough as that of most boys entering corresponding types of school. In Circular 826 (on the Curricula of Secondary Schools) the Board state that the course for the Junior School, in which the average age of the pupils is between 8 and 12 years, must include for all pupils English, Arithmetic, History, Geography, Drawing, Singing, and Physical Exercises.

"The work in English must include Writing, Spelling, the reading of suitable books, and the elements of Grammar; and provision must also be made for instruction in reading aloud and in the learning by heart of English verse."

"It is highly desirable that provision should also be made for some instruction in manual work or handicraft and in Nature Study, and the inclusion of these subjects may in any school be required by the Board."

In girls' schools instruction must be given in Needlework to all pupils from the age of 10 upwards. The Board add that as a rule it will be desirable to begin the study of languages other than English in this portion of the school, and that in arranging the course of work not more than one language should be taught to pupils under the age of 10, and not more than two languages to pupils above that age but under the age of 12. "In no case can the concurrent beginning of two languages be permitted in this part of the school. There should always be an interval of at least one year, and generally of two years, between the times at which two languages are begun."

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(1) Many Local Education Authorities arrange that the free place scholars enter the Secondary School at the age of 11.

(2) We are well aware that many private schools both for boys and girls are thoroughly efficient, and are carrying on valuable educational work.

It will be observed that the only differentiation explicitly prescribed at this stage is the provision of instruction in Needlework for girls.[1]

(B) *The Middle School.*

(39) The curriculum for the main portion of the school must comply with the general conditions laid down in Chapter II. of the Regulations with the object of securing due attention to the cultivation of the body and mind by means of exercises and games and the practical use of the pupil's faculties. These Regulations provide that the minimum curriculum for pupils between the ages of 12 and 16 must include English Subjects, foreign languages, Mathematics, Natural Science, and Art. We understand that the existing practice is to require the continued study of History, English, a foreign language, Mathematics, and a branch of Natural Science throughout this stage, with individual exceptions—general exceptions being allowed only on special grounds. The Regulations, as administered by the Board, afford great latitude to the school authorities. The Board point out in Circular 826 (on the Curricula of Secondary Schools) that the requirement of certain specified subjects in the curriculum does not imply that all pupils should study each of these subjects throughout the whole of their school course ; and, in the upper part of the school, those pupils who proceed to advanced work naturally discontinue some subjects in order to give special attention to others. Even in the middle part of the school there is scope for much elasticity in the apportionment of time to each of the various subjects ; and in many schools the pupils are allowed, at certain stages, to concentrate on certain subjects, and to devote less attention to others. The subjects which thus temporarily receive less attention are usually emphasised at another stage of the course. In special circumstances the Board are prepared to relax the requirements relating to foreign languages, more especially as regards schools in which the work has a rural bias. In certain instances, also, the Board are prepared to approve within the curriculum a certain limited amount of technical work, so that boys and girls may be enabled

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(1) This should be compared with the differentiation implied in Article 2 (5) of the Board's Provisional Code for Elementary Schools for 1922. "*Practical instruction in Handicraft, Gardening, Domestic and other Subjects.*—Wherever possible practical instruction should be given to the older children and should form an integral part of the ordinary school curriculum. . . . Domestic Subjects for girls include instruction in the proper performance of ordinary domestic duties, together with instruction in Needlework and Knitting. Instruction in Cookery, Laundrywork and Housewifery should be given whenever practicable to the older girls. . . . A lesson in domestic subjects should, as a rule, occupy not less than two hours, and the greater part of this time should be devoted to practical work by the girls. Needlework should be so taught as to secure a practical knowledge of sewing, cutting-out and making ordinary garments, together with mending and darning."

to prolong their general school education and during its course, in the last year or two years of school life, to begin their more technical studies. The Board point out that not only may there be differences of curriculum corresponding to the varying circumstances of different schools, but that there may also be alternative courses of instruction in any one school. The Board recognise, in Circular 826, that there will be much variation in the arrangement of the curriculum for the middle portion of the school according to local circumstances and according to the attainments of pupils entering the school from Elementary Schools, Preparatory Schools, Junior Department of Secondary Schools, or Private Schools. Most pupils in the Middle school on reaching the appropriate standard, sit for the First School Examination, which is usually taken by boys at the age of 16, and by girls (on an average) at a slightly later age, between 16 and 17. The requirements for this examination as laid down by the Board and the various examining bodies prescribe that at least five subjects must be offered, including one from each of the following three groups :—English subjects; Languages other than English; Science and Mathematics.[1]

Special Courses in the Middle portions of Secondary Schools, for pupils over 15 *years of age.*

(40) The Board state, in Circular 826, that in certain instances they are prepared to accept special courses of a vocational character, such as courses in commercial, agricultural, and domestic subjects. In commercial subjects in the middle forms of a school the special work may include Shorthand, Business Methods, Typewriting, and the Principles of Accounts; but special courses in Commercial History and Commercial Geography will not be accepted for middle forms, and the work in Modern Languages should not be primarily concerned with their commercial use. This special commercial work should not, in the Board's view, begin before the age of 15, and should not as a rule occupy more than one-fifth of the whole school time.[2]

In accepting courses specially adapted for the education of pupils who will be engaged in farming and similar occupations the Board do not necessarily require the inclusion of a foreign language in the curriculum.

As regards domestic courses the Board, under Article 9 of the Regulations, may approve for girls over 15 the partial or entire substitution of a combined course in Housecraft for Natural Science and for Mathematics other than Arithmetic. This combined course need not include Needlework, but should include

(1) See Circular 1002 of 15th June 1917, Scheme for the better organisation of Examinations of Secondary Schools, § 8 (*c*), and the Regulations of the different Examining Bodies.

(2) We understand that the Board have refused to recognise an examination for a "Commercial Certificate" as alternative to an approved First School Examination.

both Laundry-work and Cookery. If the combined course extends for more than one year, courses may be added in one or more of the following subjects :—Home-Nursing, First-Aid, Care of Children, Hygiene, or Household Management generally.

(C) *The Upper part of the school, for pupils over* 16.

(41) The Board define the expression "Upper part" as meaning not merely the higher Forms, but Forms composed of pupils, of not less than 16 years of age, who, having pursued a systematic course of study in the middle and lower forms, have reached a standard of attainment in the main departments of work, which can conveniently be determined by the First School Examination or examinations equivalent thereto.[1] In the view of the Board the remaining years of school life, after the age of 16, will be properly used for more specialised work, which may either be adapted to the requirements of those whose normal education will, for many pupils, be completed at school, or arranged in special preparation for a University course. Thus the principles underlying the organisation of the curriculum in this part of a school differ from those which apply to the middle and lower forms. Older and more advanced pupils naturally desire to concentrate their attention on a smaller number of subjects; and their general education will probably be best advanced, if they acquire a thorough knowledge of one department of study, while not altogether neglecting other subjects. It follows that in this part of the school much greater freedom of choice is necessary. The Board point out that it is one of the chief duties of Secondary Schools to pass on to the Universities a supply of pupils well prepared to begin the courses of study required for an academic degree. The most serious difficulty in the arrangement of this portion of the school work is that the number of pupils taking any particular course of study is frequently so small that organised class work becomes impossible, especially in smaller schools.

The present Regulations for Advanced Courses.

(42) Partly in order to facilitate the organisation of the upper part of Secondary Schools the Board, since 1917, have inserted in the Regulations a special chapter for the provision and recognition of Advanced Courses. The arrangements for these Courses—which were first described in outline in Circular 826 (1913) as comprising three Courses, viz., Mathematics and Science, Classics, and Modern Studies—have been gradually modified in the light of experience of their actual working; in the Regulations for 1921 a fourth Course was added in the form of a combination of Ancient and Modern humanistic studies, and

(1) Circular 826 (1913), § 37.

in 1922 a fifth course in Geography was introduced. The current regulations for the five recognised Courses may be summarised as follows :—

The Course must be planned to provide instruction, extending over two years, for groups of pupils who, at its commencement, have already reached the stage of general education determined by the standard of an approved First School Examination. The main subjects of study in any such Course must be selected from one of the following groups :—

A. *Science and Mathematics.*—This course normally includes work in both Science and Mathematics; but this requirement may be waived for pupils who do substantial work in the Biological Sciences, provided that the course is otherwise suitable and includes work reaching an adequate standard in the Physical Sciences.

B. *Classics.*—This course must provide for all pupils substantial work in the language, literature, and history of both Greece and Rome.

C. *Modern Studies.*—This course comprises the language, literature and history of the countries of Western Europe in mediæval and modern times. Such a course must include—

(i) The advanced study of the language and literature of one foreign country of Western Europe in modern times;

(ii) *Either* the study of a second such language, or work of a good scope and standard in English language and literature; or

(iii) The study of history, always including in the case of each literature taken the history relevant to the period specially studied.

D. *The civilisation* (i) *of Greece or Rome and* (ii) *that of England or another country of Western Europe in modern times, as embodied in their language, history, and literature.* Such Courses must include provision for substantial work in—

(i) The language and literature of Greece or Rome in classical times;

(ii) The language and literature either of England or of a foreign country of Western Europe in modern times;

(iii) History, which should always include the history relevant to the periods of literature specially studied.

E. *Geography.*—This subject must be combined with two other subjects approved by the Board, of which at least one must be History or a Science.

In all Advanced Courses adequate provision must be made for the study and writing of English by every pupil, either in connection with the main subjects of the Course or otherwise. We understand that the Regulations for these Courses as administered by the Board are much more elastic than would at first sight appear, and that, in practice, any well planned Course in any of the five groups is generally approved.

The most important modification of the rigidity of the scheme recognised by the Board is that in the Course in Science and Mathematics. Here the requirement that the Course should normally include work in both Science and Mathematics is, in practice, frequently waived for pupils who do substantial work in the biological sciences. This facilitates the organisation of Science Courses in which Biology may occupy a prominent place as a group subject more especially in girls' schools.[1] The actual arrangements for these Advanced Courses are as a rule planned to fit in with the syllabuses for the Second School Examination (Higher Certificate Examination) drawn up by the various Examining Bodies. This Second School Examination, as at present arranged, is a specialised test in one of three groups :— Classics, Modern Studies, Science and Mathematics. Some Examining Bodies treat Mathematics and Science as separate groups.[2]

Illustrations of the extent of differentiation at present existing in Schools working under the Board's Regulations.

(43) These Regulations are, as a rule, reflected very clearly in the actual curricula of the schools. For example, in the West Riding the girls' schools differ mainly from the boys' schools in regard to the curricula for pupils up to the age of 16, in substituting for Manual Instruction, Domestic Subjects, which

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(1) *Memorandum on Advanced Courses* issued in 1919 (Circular 1112) :

§ 21. "The serious study of Biology requires a substantial knowledge of both Chemistry and Physics, and therefore a sound knowledge of Elementary Mathematics. It is expected that Chemistry will always be continued in the Advanced Course in connection with Biology and that Physics will also be continued unless it has previously been carried to an adequate standard. Where, however, Biology occupies a prominent place in the Course, the requirement of Mathematics in addition to the auxiliary Sciences of Chemistry and Physics might involve, especially in Girls' Schools, the risk of serious overstrain. The Board have therefore reserved discretionary power to waive, either in the Course generally or for certain pupils taking it, the requirement of the continued study of Mathematics."

(2) Circular 1002 of June 15th, 1917, § 9, and the Regulations of the various Examining Bodies. The fourth course "D" is already provided for in some Second School Examinations and arrangements will now doubtless be made for course "E."

are generally taken earlier than the Board seem to contemplate, and in replacing by Botany the less elementary Physics and Chemistry done by boys. Latin is generally begun later in girls' schools, and taught for fewer hours in each week, than in boys' schools, and girls who are thought to show a want of aptitude for Mathematics are sometimes not taken beyond Elementary Algebra and Geometry.[1] These variations, however, permit the First examination, which in the West Riding is the School Certificate of the Northern Universities Joint Board, to be taken by girls as well as by boys. Girls may take Botany where boys take General Experimental Science, or Physics, or Chemistry; French may be offered as the one foreign language required; and Mathematics may be avoided if a Matriculation Certificate is not indispensable. In co-educational Secondary Day Schools in the West Riding the same differences exist, though to a smaller extent. Many girls take Botany; but more take Chemistry, Physics, and Mathematics up to the standard of the First School Examination than in ordinary girls' schools. Most of the West Riding Secondary Schools are only just beginning to retain more than a handful of pupils over the age of 16, though the number is rapidly growing. Of those now in the schools, most are pupils who have passed the First Examination and show promise of taking successfully the second. Some girls' schools in the West Riding have rather shorter hours than are usual in boys' schools, but there is a tendency to bring them into line with boys' schools. Others have no afternoon session, and the morning session accordingly lasts till 2 o'clock, with a short interval for lunch.

In the same way in co-educational Secondary Day Schools in Leicestershire girls are allowed to take Botany instead of Physics, and Needlework instead of Trigonometry, in the Middle and Upper Forms. In Form V. in one of the largest "Mixed" Schools in the county a differentiation between the sexes is made by the provision of a separate course for girls in General Science, which is specially arranged to meet their need for Domestic Instruction, while the boys take a systematic course in Physics and Chemistry. There are always, however, some girls of the professional class in these schools who take the full Science Course with success.

The head master of a large co-educational Day School informed us that the girls did less Mathematics and Physical Science than the boys in the Upper Forms. In Form V. (*b*), in which pupils were prepared for the Oxford Local Examination the girls took Hygiene and General Elementary Science, while the boys took Mathematics and Electricity.

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(1) Elementary Algebra and Geometry is the common limit for many pupils and for some entire schools throughout England.

Part II.—Criticisms of the existing Curriculum by our witnesses.

(A.) Junior Schools or Departments (for Boys and Girls up to about 10 or 11 years of age).

(44) Our witnesses were agreed that there was probably no necessity for any very explicit differentiation in the curriculum as between boys and girls up to 12 years of age except in manual work. The existing arrangement under which girls did some Needlework, while the boys did Woodwork or other forms of manual work, was regarded as providing a sufficient degree of differentiation at this stage. In Physical Training, several expert witnesses thought that girls and boys might do the same physical exercises up to 10 or 11 years of age, though some preferred that the sexes should be separated at 11 rather than 12 for gymnastics and games. Several witnesses pointed out that the education ordinarily given under present conditions to boys and girls at this stage, except in Elementary Schools and in Preparatory Schools or Junior Departments[1] presented a variety, which, though due in many cases to intelligent experiment, was also frequently due to mere tradition. On the one hand were the well-established Preparatory Schools for boys,[2] in which the curriculum had a strong linguistic bias; on the other hand a number of private day schools for girls, with curricula frequently based on no well-considered principles, and employing methods that were often old-fashioned and ineffective. The fact that a large number of girls had, up to the age of 11 or 12, been educated by governesses or in private schools rather than in the Junior Departments of Secondary Schools proper was the cause of many of the differences, which undoubtedly existed in the actual working of the curriculum in girls' and boys' schools. For example, one of the greatest practical difficulties with which many girls' High Schools had to contend was the difference in the educational standard attained by junior pupils at entrance. The head mistress of a large boarding school told us that, owing to the defective linguistic training of many of her pupils who had come to her from private schools, she found much greater difficulty in bringing them up to the standard of the First School Examination in Latin or French than in Mathematics. She thought that boys who had been at Preparatory Schools had a great advantage in having received a fairly systematic grounding in foreign languages from an early age. On the other hand, as is pointed out in Chapter III. of this Report, the inferiority of many girls in Mathematics and Physical Science is possibly due to the absence of effective teaching in Arithmetic before they enter the Secondary School.

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(1) Many of the High Schools and Endowed Schools for Girls possess efficient Junior Departments.

(2) Boys frequently remain at Preparatory Schools up to the age of 14.

Apart from the general suggestions in their Circular on Curricula,[1] the Board do not seem as yet to have laid down any very definite rules or to have devised any system for supervising the organisation in these Junior Departments.[2] No general principles appear to have been enjoined in regard to the staple subjects of instruction or standards of attainment, nor do any special arrangements seem as yet to have been devised to secure efficiency. We would suggest that the whole problem of the curriculum of schools for junior children deserves much more careful consideration than it has hitherto received. We also suggest that interesting results might be obtained if careful note could be taken of the different types of curricula, which appear to be best suited to the needs of young children of both sexes taught under varying conditions.

(B.) The Middle School (for pupils from 11 or 12 to 16 or 17).

General criticisms and comments on the existing curriculum by our witnesses.

(1.) *That it is too academic.*

(45) Our witnesses held that the curriculum was modelled too much on the requirements of those boys and girls who were preparing for University and professional examinations and failed to provide sufficient contact with practical life. We consider that there is some substance in this criticism, especially in its bearing on girls' schools, where one of the most important aims of the training, that of fitting girls for the duties of motherhood and for work in the home, has been unduly obscured by the academic trend given in many instances to the curriculum owing to the necessity of preparing pupils for external examinations. The unduly academic bias of the curriculum, we were informed, was especially noticeable in some types of girls' schools, and probably went far to account for the fact that many girls, on leaving school, seemed unable to correlate their knowledge of different subjects and to apply it to concrete problems. It will be seen from the summary of the psychological evidence in Chapter III. that there is some reason to believe that girls are less interested in abstract argument than boys, and it would, therefore, appear that it is especially desirable in girls' schools that the practical application of apparently abstract subjects, such as Mathematics, should be shown from an early stage, and that, in general, the teaching of the different subjects should, as far as possible, be correlated so as to show their bearing on the facts of everyday life. Girls are disposed to be more receptive than boys, and it is, therefore, especially important that they should be encouraged to think for

(1) Circular 826 (1913), pp. 29 and 30 (summarised on p. 50, *ante*).

(2) We understand, however, that these Junior Departments, where they exist, are inspected and reported upon on occasions of Full Inspections.

themselves and to apply their knowledge. We have received a number of memoranda from representatives of several great commercial and industrial concerns which employ considerable numbers of men and women educated in Secondary Schools. They alleged that the existing curriculum was too academic and failed adequately to develop those qualities of initiative and responsibility, which were so valuable in business. Moreover, it did not sufficiently stimulate the imagination. In many cases employees entering direct from the secondary schools seemed unable to correlate such knowledge as they possessed and to apply it in their everyday work. There was also, in some instances, a lack of initiative and resourcefulness, which was especially noticeable in women employees. We are inclined to explain this effect as due partly to preparation for examinations, partly to the congestion of the curriculum, and partly to the fact that some mistresses in secondary schools help their pupils too much. The consequence is that many girls never really acquire the habit of thinking and acting for themselves and correlating such knowledge as they possess. It would appear from our evidence that the same fault is present, though to a less degree, in some boys' schools. If pupils are assisted too much by their teachers, and if too much reliance be placed on text-books, the result must inevitably be to make them rather helpless and disinclined to tackle problems on their own account. We accordingly agree with these employers in recommending that the curriculum, teaching, and activities of secondary schools, and more especially girls' schools, should be so planned as to develop initiative and responsibility, to stimulate the imagination, and to correlate the different subjects of the curriculum with one another. Private study should be encouraged and the pupils should be thrown more on their own resources in the last years at school.

Many witnesses urged that the principle embodied in Article 9 of the present Regulations should be extended, and greater latitude allowed to head mistresses to organise special courses of various kinds to meet the needs of pupils over the age of 15 who either did not desire to take the First School Examination at all, or, having passed that examination, did not wish to take an ordinary Advanced Course. We think that development on these lines is desirable, and that the Board should encourage school authorities to provide for the needs of "non-academic" girl pupils over 15 or 16 years of age. The principle already embodied in Article 9 of the Regulations, in regard to special Domestic Courses, might be extended to cover other courses of like type. We suggest that wide latitude might be left to head mistresses in planning such courses to meet the needs of girls over 15, who desire to remain at school for either one or two further years, but do not intend to proceed to a university. Such courses might, for example, consist largely of English Literature, one foreign Language, and the Arts, including Music;

or again of Domestic Subjects, with some form of Craft work for pupils who had a bent in that direction. Courses in the language, geography, and economics of a foreign country might also be provided, especially for girls intending to enter business.

2. *That it is over-burdened, especially in Girls' Schools.*

(46) Great emphasis was laid by many witnesses on the overcrowding of the curriculum in Girls' Schools which, as we have shown in Chapter I., is largely due to the fact that the pioneers of the reform movement in women's education about the middle of the last century took over the boys' curriculum while retaining in an attenuated form the old tradition of "accomplishments." It has thus come about that many girls who have no genuine aptitude for Music or Needlework are still expected to devote considerable time every week to work in these subjects. In addition to this, as is shown in Chapter III., many girls in day schools are expected to do a considerable amount of fairly heavy house work in their homes, with the result that they are often seriously overworked physically and mentally, and have little or no free time in which to develop their own individual interests. An ordinary girl, inasmuch as she was, as a rule, physically unable to stand the strain, should really study fewer subjects than a boy, whereas at present she actually took more. Insistence on the continued study of uncongenial subjects after a certain age often had the effect of depressing their energies and was in consequence educationally mischievous. On the other hand, there was obviously a serious danger in any system of education which did not emphasise the lesson that difficulties must be faced and overcome. The evil was accentuated by the fact that girls in general were more inclined than boys to worry over their work. An overloaded curriculum was therefore, many witnesses thought, more likely to cause a certain amount of distress to a girl as it did not permit her to reach the standard she felt bound to attain. Several University witnesses told us that one result of the present overcrowding of the curriculum in girls' schools was that there was not sufficient time for thorough and accurate work, and in consequence many students on entering the University were weak in this respect.

A more serious consequence of the congestion of studies which was especially noticeable in girls, was the absence of freshness and initiative. Several witnesses who had had to deal with large numbers of women students at Training Colleges and at Women's Colleges at the Universities had been struck by the relative dulness and lack of resilience in many of them, and attributed it chiefly to the fact that, owing to the congested curricula in the Secondary Schools, many pupils had no free time and no facilities for developing their personality and their own individual interests. Several witnesses, including one parent, suggested that, during the first few years of Secondary School

life all girls should, for a certain length of time, study English, one foreign language, Mathematics and Science, together with æsthetic and domestic subjects. At about the age of 15 or 16, a differentiation should be made in the subjects according to the bent of the pupils. One witness suggested that it ought to be possible to discover, at the age of 14 at the latest, what were the subjects for which a particular girl had an aptitude, and that for the rest of her school life a few subjects only should be studied, more time being devoted to each so that her education should be more specialised. At present in many girls' schools valuable time was lost in attempting to teach several foreign languages to the younger pupils. In many Secondary Schools both for boys and girls about half the pupils were not fit to study effectively more than one foreign language, and should devote more time to it and to the mother tongue than the other pupils.

We are convinced that there is much truth in the contention that the congestion of the curriculum frequently entails serious consequences for the mental and physical welfare of many pupils, and we accordingly suggest that the Board should devise suitable means of dealing with this problem, which appears to be especially urgent in girls' schools.[1] In the light of the available evidence, we consider that it is even more important to allow a certain amount of free time to girls than to boys, as most of our witnesses have assured us that girls are much less able to protect themselves against over-pressure than boys, who have, as a rule a habit of healthy idleness, whereas girls are more conscientious. As one witness expressed it, " If you give a girl too much to do she breaks down; if you give a boy too much to do, he doesn't do it." In general, we are of opinion that the curriculum in most schools does not at present afford sufficient free time for a variety of self-chosen occupations, fostered, if necessary, by voluntary societies.

3.—(a) *That it is too rigid.*

(47) There was general agreement among our witnesses, especially the women witnesses, that greater flexibility was required in the curriculum, especially in girls' schools. Many of the curricula drawn up by the school authorities to comply with the existing Regulations were unduly rigid, and did not allow adequate scope to head mistresses to meet the needs of pupils who deviated slightly from the ordinary type. Many witnesses urged the desirability of allowing greater elasticity to girls' schools in the matter of the curriculum, on the ground that such differentiation as was desirable would naturally emerge. It should be mentioned that some witnesses were of the opinion that similar elasticity, though not to the same degree, was

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(1) *cf.* §§ 28 and 29 of the Prefatory Memorandum to the *Regulations for Secondary Schools* for 1922.

required in boys' schools.[1] Other witnesses thought that what was required, especially for girls, was a further development of the principle of substitution—in other words, a larger number of alternative subjects and greater freedom of choice, including the Fine Arts, Commercial Studies, and Craftwork. The great majority of our witnesses laid special stress on the desirability of revising the arrangement of the curriculum, so as to give greater prominence to the Arts, including Music.

We think that there is much truth in the contention that the existing curriculum is unduly rigid, especially for girls' schools. It has to be recognised that many girls will proceed to careers which involve economic competition with men, and no hindrance should be placed in the way of their following the boys' curriculum, if they so desire. On the other hand, the large number of girls, who might with advantage take a different course, should not be debarred from following their particular bent. There should be sufficient elasticity in school curricula and in the requirements for the First School Examination to meet their needs.

In this connection many witnesses, including several head mistresses, urged that, in the First School Examination for girls, a more prominent place should be assigned to Drawing and Music, which were at present relegated to an inferior position in Group IV.[2] We have dealt with the position of Drawing and Music in the curriculum in Section 52 of this chapter, and have suggested that the Group containing Music and Art should be accorded full parity in the First School Examination with Groups II. and III. We fully realise that the whole question of modifying the existing arrangements for the First School Examination requires to be approached with care in view of the requirements of the different professional bodies, which accept that examination wholly or in part in lieu of their own entrance examinations. We would suggest that the difficulty might possibly be surmounted by permitting candidates, under certain conditions, to sit for separate supplementary examinations in certain individual subjects, such as Mathematics, which might be needed to meet the requirements of the Professional Bodies. This is actually done in many cases at present.

(b) *That it is desirable to provide more scope for individual divergence of interest and ability.*

(48) Many witnesses, basing their view on the consideration that the range of variability within each sex in point of educable capacity seems to be greater than any differences between the sexes, urged that the divergences of aptitude, interest and inclinations in individual pupils should receive fuller recognition in

(1) Several witnesses pointed out that the Matriculation requirements of certain Universities determined with undue rigidity the curriculum of the Fifth and Sixth Forms both in Boys' Schools and in Schools for Girls.

(2) See the note about the present position of Music and Drawing (Art) in the First School Examination in Appendix IV.

school teaching and in examinations. It was pointed out that the existing curriculum, though it might not sufficiently recognise strong or weak capacity, did recognise the variety of the interest taken by different pupils in practical and theoretical subjects. In general, the great need appeared to be a wider latitude in the choice of particular subjects in order to suit individual power, and a greater freedom of pace in order to suit individual rates of development. For example, one witness suggested that, if the curriculum were modified on these lines, and if in examinations, and as far as possible in schools, more scope were allowed for individual divergence of interest and ability, any sex differences which really existed would receive legitimate recognition, while individual variations within each sex would also have free play. Several witnesses suggested that the problem of the curriculum was to arrange progressive courses, divided in suitable stages in view of the mental growth of the pupils, and the problem of classification was to arrange that the pupils were placed in the most suitable group. The more wisely the curriculum was planned and the greater the opportunities for re-classification, the more unlikely it was that any serious difficulties would arise in any group from differences of educable capacity. For this reason they held that the provision of parallel forms and "express" forms (*i.e.*, forms in which work usually done in four years was done in three years) would tend to improve classification and to give opportunity for special acceleration or retardation in individual cases.

It was also pointed out that adolescence in different individuals took place at widely different times, and that the curriculum should be arranged to meet these variations between chronological, mental, and physiological age. It was further suggested that many girls at adolescence could best express themselves by means of Handicraft, Physical Exercises, and other forms of practical work. Some of the witnesses thought that girls' schools in general possessed an advantage in that an outlet or means of individual expression for so-called "dull" girls might be found more readily than for "dull" boys in boys' schools. It was probable that, at the lower end of the scale, differentiation was especially necessary, and for this reason greater liberty should be given to heads of schools in arranging their curriculum. Several medical witnesses called attention to the importance of providing suitable opportunities for wakening latent ability in so-called backward girls and boys by offering a wide range of practical interests between the ages of 12 and 16.

4. *That the existing Curricula for Girls are modelled too much on those for Boys.*

(49) Many of our witnesses, including several parents, emphasised the consideration, which seems to emerge from the history of the curriculum described in Chapter I., that the existing curricula had been drawn up mainly by men for boys, and

that, in consequence, adequate scope was not afforded for girls, who required a greater number of alternative subjects than boys from the age of 14 onwards. The tendency to model the curricula of girls' schools on those of boys' schools had been intensified by the common examinations, still largely controlled and conducted by men, for which both sexes sat from the age of 16 upwards. One witness, for example, cited the case of Mathematics, to which a degree of respect was paid which was probably exaggerated for boys, and certainly for girls.

5. *That the undue prominence sometimes given to the competitive principle in girls' schools may lead to overstrain.*

(50) Some witnesses, basing their suggestions on the physiological fact that girls usually completed their physical development at a much earlier age than boys,[1] and assuming that psychological development bore a close relation to physical development, recommended that girls should be introduced to new phases of intellectual work at an earlier age than boys. The witnesses held that this need not involve the separate education of boys and girls, but only classification in certain specific subjects on a basis other than that of age alone.

Other witnesses stated that girls, who appeared to develop rapidly at first, up to about 14 years of age, and then relatively slowly, often seemed to find it difficult, between the ages of 14 and 17, to keep up their class position in Co-educational Secondary Schools without undue effort.

One or two of our witnesses, with considerable experience of schools in certain areas, had observed that girls who, up to 14, were very fond of hockey, cricket, and swimming, preferred such forms of relaxation as walking, reading, needlework, and tennis after 14 years of age. This seemed to indicate that growing girls often had not the desire for strenuous physical exercises, which they enjoyed earlier, and would probably enjoy again later, after the age of 18. There was some evidence to show that their intellectual development followed a similar course. We have not sufficient evidence to enable us to pronounce any opinion on the correctness of this view, but we would suggest that further investigation on systematic lines is desirable. Other witnesses laid stress on the evil effects of excessive competition, both in class and in games, on girls between the ages of 14 and 17. The head master of a large Co-educational Day School told us that he thought it was most important to retard the education of girls during this period. Several witnesses suggested as a remedy that, while a certain standard of steady effort should be expected at this period, and while the girls themselves need not be made conscious that less was expected of them, due allowance should in practice be made for this period of lessened vitality. For example, competitive internal examinations, which sometimes had the result

(1) *See* Chapter III. of this Report.

that girls struggled to keep a high place, should be discarded during that period in favour of school lists grading girls in groups. The extreme competitive element would thus be removed. In the same way in games, competitive team matches, so far as they involve intensive training, should in general be discouraged for girls of 14 to 17. In the light of our physiological and psychological evidence, which is summarised in Chapter III., we think that a strong case has been established for further modifying the competitive prnciple for girls in Secondary Schools between the ages of 14 and 17. We understand that even at present some girls' schools substitute for competition a system under which the pupils are placed weekly or fortnightly in classes A, B, C, or D. Each of these classes represents a certain percentage of marks; and it is suggested that a girl showing reasonable industry may, without effort, maintain her position in the class to which she is assigned. Whether there is less strain in playing against bogey than in playing a match seems at least to be open to question; and we are inclined to doubt whether this system represents any substantial improvement on the ordinary competitive methods.[1] We would suggest, however, that systematic research is required into the whole question of competition in girls' schools and the limits within which the competitive principle can safely be applied with satisfactory results.

6. *That Girls should not be encouraged to sit for the First School Examination before the age of* 16½ *or* 17.

(51) Many of our witnesses urged that girls as a rule should not be encouraged to take the First School Examination before the age of 16½ or 17. This suggestion, if adopted, would mean that many girls would spend another year in the main portion of the school, entering about 11 and taking the First School Examination at about 16½ or 17. It was pointed out that in many girls' schools where there was no economic pressure the average age of girls taking the General Schools Examination of the University of London was 17 years and upwards. The main reasons adduced in favour of the suggestion may be summarised as follows :—

(*a*) Girls were physically less strong than boys, and were probably less capable of severe and prolonged mental effort, especially from the age of 13 or 14 upwards. There was also, from the age of about 11½ onwards, a difference in the " tempo " of development in girls as compared with that of boys which ought in some way to be reflected in the curriculum. Moreover, many girls were more highly strung than boys, and consequently more liable to nervous

(1) *cf.* E. L. Thorndike, *Educational Psychology* (New York, 1913), I., pp. 286–289.

strain. In the light of the physiological and psychological evidence, summaried in Chapter III., we are disposed to attach considerable weight to this consideration.

(*b*) This tendency to overstrain was often intensified by home duties which affected girls in day schools far more than boys in similar schools, as is shown in Chapter III. The daughter in many middle class families, while still at school, was expected to help her mother in household duties and in cases of sickness to act as nurse.

(*c*) The time which was still devoted by a considerable proportion of girls to instrumental music and needlework had also to be taken into account.

On the other hand, several authoritative women witnesses pointed out that there were serious objections to this arrangement.

(i) It would inevitably impair the value of the last year or two of school life, which should be spent on subjects for which the student showed special taste. For economic reasons many parents could not afford to keep their daughters at school beyond the age of 18 ; and it was important that those girls who were proceeding to the University should so far as possible have two or three years free from examinations in which they could prepare themselves for the courses which they proposed to take at the University.

(ii) The Universities were inclined to extend their courses from 3 to 4 years ; and for economic reasons many girl students, who did not enter the University till the age of 19 or 20, would find it difficult to remain there for 4 years.

(iii) The authorities of Secondary Schools were naturally anxious to develop the Advanced Courses ; and though there was nothing in the Regulations to prevent girls from beginning an Advanced Course at the age of 17, it was often difficult to induce parents to allow their daughters to remain at school till the age of 19.

(iv) The Board's Regulations for State Scholarships which had been in force up to 1921 rendered it difficult for girls, who aimed at obtaining one of these scholarships on the result of the Second School Examination, to postpone taking the First School Examination much after the age of 16.[1]

On consideration of the available evidence we think that it is desirable that girls should not as a rule be encouraged to take the First School Examination till about the age of 17,

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([1]) It has been decided that no new awards of State Scholarships shall be made in the financial years 1922-23 and 1923-24, but that the question shall be reviewed at the end of these two years. The Regulations for the Scholarships for 1921 provided that candidates must be under 18 years of age on the 31st July preceding the date of the Second School Examination. (Statutory Rules and Orders, 1921, No. 2103, Regulation 5 (*b*).).

and we accordingly recommend that the Board should take measures to render it easier for such girls to take this examination rather later than boys.

We are of opinion, however, that the needs of many University candidates would be met by a general acceptance of a concession already made by most Universities, viz., that holders of a First School Certificate who have qualified for Matriculation in all subjects except one, should be able to take that subject separately at a subsequent First or Second School Examination. It is well known that many capable candidates have a weak subject and that this weakness is the cause of their failure ; to compel them to sit again for all the subjects of the matriculation course because of the failure in one subject only is often a very great hardship. If the rule, which we recommend, were made general, more candidates (and this is specially true of girls) would be able to qualify for matriculation in four subjects at the age of 16 or 17, and they could take at a later examination the one subject in which they had failed to qualify, without any interruption of their advanced studies.

7. *Desirability of developing the Aesthetic side of Secondary Education for both sexes.*

(52) We have been much impressed by the almost unanimous agreement among our witnesses (including parents) on the desirability of developing the aesthetic side of secondary education. The relative neglect of Music, Drawing and Painting, and other forms of aesthetic training, is less noticeable in girls' schools, which inherit from the older tradition of women's education a sense of the importance of the fine Arts. This good element in the tradition of girls' schools is, however, largely counterbalanced by an exaggerated belief in the importance of executive ability ; and the study of musical and artistic appreciation has been till recently almost ignored. In boys' schools, with some notable exceptions, the aesthetic side has hitherto been much neglected. Several of our most authoritative witnesses, basing their opinions partly on the results of psychological research and partly on experience gained in co-educational schools, thought that the response of the two sexes in Music and Art[1] was probably equal, if equal opportunities were provided, and that in consequence a more serious development of aesthetic training was very necessary in the whole of our system of Secondary Education. Others laid much stress on the value of the fine Arts, when properly taught, in developing concentration of mind, accuracy of observation, and a genuine appreciation of natural beauty and artistic achievement, and in stimulating the growth of the imaginative, critical, and creative faculties. It was pointed out that, in the past, technical skill had been too much regarded

(1) We have used the word "Art" according to custom as meaning Drawing, History of Art, and Appreciation of Art and Craftsmanship.

as the only measure of successful achievement in these subjects. Only a small proportion of the pupils could probably attain to high technical skill, but the great majority could be trained to appreciate good Art and good Music.

Much emphasis was laid by many of our witnesses on the educative value of Drawing, which not only afforded an excellent training for the hand and eye, but developed subtle processes of feeling and intuition through which knowledge was derived and conveyed, and by means of which truth was apprehended as it were directly. Artistic "imagination" or "vision" appears to be closely allied with the emotional nature and for this reason is obviously of vital importance in the education of the young. If neglected or ignored, it may easily become perverted, and feed a mere craving for the garish and sensational and even the sensual. It is in the education of these faculties and powers, these finer sensibilities, that Art teaching can be made to take such an important part. Skilful Art teaching should also produce quickened and intelligent observation and a certain measure of manual and manipulative dexterity. It should also provide a training in disciplined effort.

Again the study of music, rightly undertaken, can be of the highest educational value. We are in error if we dimisss it as a recreation, or seclude it as a remote and technical study which is out of relation to the rest of our intellectual life. Its range is not less wide than that of literature ; it appeals to the same faculties of emotion and judgment; it is, allowing for the necessary differences of medium, subject to the same general aesthetic principles. Its history, far too much neglected in our schools, is an essential part of the history of our civilisation. The mental training offered by analytic study of its construction and texture is closely parallel to that afforded by the natural sciences. Its problems of style are as interesting and varied as those presented by any literary form. Above all, it is a language with a poetry as noble as that of Dante or Racine, of Shakespeare or Milton. All the arguments which can be used for the inclusion of Language and Literature in our ordinary scheme of education may be used with equal force in the case of Music. Its worth has been attested by almost every great educational writer from the time of Plato; and the only reason why it is not already established in our schools is that English music is but now recovering from a century of apathy and neglect, in which its tradition, once amongst the greatest in Europe, was allowed to fall into oblivion. From this dark unprofitable period we have now emerged; and it is high time that our national gift of music, which has once more come into its own in executance and in composition, should be duly recognised in the training grounds of our schools and colleges.

Some of our witnesses directed attention to the special importance of a study of the fine Arts in day schools, as it was here in particular that the effects of unfavourable environment could to some extent be counteracted. Moreover, such studies, besides

affording a relief from the ordinary school subjects, had been found to be of great use in many instances in developing general intelligence; for example, skilful musical teaching had frequently produced remarkable results in stimulating supposed " dull " girls. Stress was also laid on the intrinsic value of the Arts in life, as a channel for the issue of emotional instincts, especially in the case of adolescents. For this purpose dancing, eurhythmics, oratory, and dramatic representations of good English and foreign plays[1] had been found useful, and many witnesses urged that the practice of these forms of Art should be further developed in Secondary Schools. Other witnesses drew attention to the value of aesthetic studies in later life, and pointed out that, from the standpoint of the double function which girls might discharge, if they fulfilled their natural destiny as makers of homes, their education should include some introduction to the amenities of life, including such subjects as music, reading aloud, or any simple art which would make their leisure time more enjoyable. In the Circular on Curricula of Secondary Schools (No. 826), the Board have given advice on the teaching of Drawing as an integral part of the minimum curriculum, and have also recommended that the practice of Singing should be included in the main part of the school.[2]

We consider, therefore, that it is most desirable further to develop the teaching of the fine arts, including aesthetic and musical appreciation, for pupils of both sexes, who show any artistic aptitude, up to 16 years of age, but more especially in girls' schools. This might be effected, not only by teaching the elements of Music to pupils in the lower forms in the main schools, and by organising the teaching of Singing both as an integral part of the school curriculum and by means of voluntary glee clubs, but also by teaching musical appreciation by means of school concerts, if such could be arranged, or by renderings of great musical compositions on the gramophone. In the same way, the elements of artistic appreciation might be taught, in association with the ordinary instruction in Drawing, by means of simple lectures on the history of Painting, Sculpture, and Architecture illustrated with lantern slides or good reproductions of great works of art. In this connection we would direct special attention to the desirability of paying more attention to school pictures and equipment, with the object of providing a better artistic environment. Several of our witnesses pointed out that the Art Rooms in many Secondary Schools compared very unfavourably with the laboratories in the same buildings. In the light of the evidence which we have received, we attach very considerable importance to the provision of a suitable artistic

(1) *cf.* Bacon: *De Augmentis Scientiæ*, VI., 4. The practice of acting, " strengthens the memory, regulates the tone of the voice, and the efficiency of pronunciation; gracefully composes the countenance and the gesture, procures a fitting degree of assurance."

(2) *See also* Circular 832 (1914) on Music, and Circular 1252 (1922) on Music.

environment in Secondary Schools and more especially in day schools. In general we think that a more prominent and established place in the ordinary curriculum for both sexes should be assigned to the fine arts, including Music and other forms of aesthetic training, such, for example, as dramatic representations[1] associated with the teaching of the mother tongue and foreign languages, Dancing, and possibly also Eurhythmics, as an adjunct to the study of Music. We would emphasise the importance of developing the power of appreciating the fine arts, as there is ample evidence to show that many pupils are able to enjoy them who have little technical skill in any of the aesthetic media. In order to strengthen the position of the fine arts in the curriculum, and to provide a wider choice of alternative subjects for boys and girls, but more especially for girls, we recommend that the Group containing Music and Art (Group IV.) be accorded full parity in the First School Examination with Groups II. and III., all the candidates for a Certificate being required to pass in English, and that Music should be made a principal subject for the Second School Examination.[2]

A pupil might be allowed to offer either Music or Drawing as a subject at the same examination.

8. *The proper place of Domestic Subjects (including Elementary Hygiene) in the Girls' Curriculum.*

(53) The question of the teaching of domestic subjects in girls' schools was dealt with in the Report of the Consultative Committee on Practical Work in Secondary Schools (1913). We have, however, received a good deal of fresh evidence on the subject. Most witnesses proposed to confine the teaching of domestic subjects to girls, but two head masters of co-educational schools told us of successful experiments in which boys had taken up needlework or camp cookery, and girls had received a training in wood-work. Others strongly advocated the teaching of hygiene and elementary biology to both girls and boys, though these cannot perhaps strictly be classed as domestic subjects. Our witnesses have expressed very divergent views, some assigning to domestic subjects the first place in an ideal curriculum for girls, while others, regarding them as having little educational value, suggested that they should be omitted from the school

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(1) At present dramatic representations (like some games) are too often arranged for the few pupils who have special histrionic talent. If they are to be of real educational value, opportunities should be afforded for all pupils to take part in them.

(2) Specimen syllabuses and sets of questions for Art and Music as full subjects for the First School Examination and for Music as a principal subject for the Second School Examination are given in Appendix IV. to this Report.

curriculum and studied later. Among those—and they were the great majority—who favoured the inclusion of such subjects in the regular school course for girls there was a difference of opinion regarding the stage at which they should be introduced and the time that should be allowed for them, one witness advocating not less than two hours a week for each of three such subjects throughout the whole of the Middle School period, others recommending a continuous course but with less time in each week, and others strongly advising an intensive course after the age of sixteen. Many schools which formerly ran successful one-year or two-year courses in these subjects for girls of sixteen and upwards have found that the number of students has seriously diminished during recent years, and some schools have in consequence abandoned these courses. It has been suggested that the falling off may have been due to the increasing amount of housework to be done in the home since the beginning of the war, but it seems more probable that during the war it was due to a desire on the part of the girls to begin some definite work as soon as possible, and that at the present time the economic conditions arising out of the war render it difficult for many parents to allow their girls this extra year before they begin the specialised training for their careers. There was also some divergence of opinion among our witnesses with regard to the content of the school course in Domestic Subjects. Nearly all witnesses wished to include Needlework, though many were opposed to the old-fashioned fine needlework, and some felt that since girls as a rule lived more sedentary lives than boys, it was desirable that the time given to this subject should be strictly limited. A few advocated freedom of choice for girls between Needlework and the other forms of Handwork, including those, *e.g.*, Woodwork, generally offered only by boys. Most witnesses approved of a course of cookery and general housecraft lessons at some stage of school life, and a few wished laundry work to be added, though the criticism was made that "both laundry work and cookery entailed a large amount of wasted time in waiting for the completion of some of the operations." Other witnesses felt strongly that hygiene,[1] the care of young children, simple nursing, and general household management should be included in every girls' school course.

A few witnesses advocated the correlation of the "physical sciences" with "domestic science," but there is some evidence to show that the practice of teaching physics and chemistry with a strong domestic bias has proved a failure, and many schools that experimented with the plan have now abandoned it. One witness who had formerly approved of the practice now considered that "this method tended to deprive the science

(1) We observe that express provision is made in the Code for teaching the Elements of Hygiene to all pupils in Elementary Schools. (Article 2 (10) of the Provisional Code for 1922.)

teaching of its intellectual value by destroying its sequence."[1] Great stress was laid on the fact that for many girls much time is already taken up by household duties at home, but it was also pointed out that few girls at the present time get as good a training in cookery and housekeeping in their homes as was given to those of a generation or two ago. Some schools have found a one-year course of cookery, at about the age of fifteen, to be of great advantage; the girls enjoy the work at that stage and show much interest in it, using their knowledge and skill in the house, and there is strong evidence that parents warmly appreciate the practical training given to their daughters.

Some witnesses pointed out that as long as domestic subjects are left outside the general school curriculum, or are taken by only a section of the girls, so long will they fail to hold an honourable place in the schoolgirl's estimation, in spite of the fact that many of the special duties of women make a strong natural appeal to girls. The Committee support this opinion and feel that the ideal curriculum is still to be evolved. There is room for much sympathetic experiment to find out how the natural instincts of the girl may be used to best advantage in assisting her all-round development while at school, and in fitting her for home-life as well as for a professional or business career.

9. *Games and Physical Exercises.*

(a) *Games.*

54. There was general agreement among our witnesses that the differentiation which at present exists in games and physical exercises between boys and girls was founded on sound reasons, and should probably be carried rather further. It will be seen from the anatomical and physiological evidence summarised in Chapter III., that girls in general are physically less robust than boys, especially at the period of adolescence. Girls also appear to be more liable than boys to suffer from the effects of nervous strain and excitement, and several witnesses accordingly urged that it was desirable that the competitive element in games should be kept within strict limits in girls' schools. Several witnesses from co-educational schools were strongly of opinion that boys and girls ought not to be allowed to play together after the age of 11, either as opponents or in mixed teams, in view of the fact that the build of the boy was muscularly stronger than that of the girl. In regard to the choice of games, most witnesses thought that hockey, lacrosse, tennis, and cricket were games appropriate

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[1] *cf.* The Chapter on "Home Arts" in Burstall and Douglas' "*Public Schools for Girls*" (1911), pp. 181 foll. Interim Memorandum on the *Teaching of Housecraft in Girls' Secondary Schools* issued by the Board of Education (1911), pp. 25 foll.; Report of the Consultative Committee on *Practical Work in Secondary Schools* (1913), pp. 45 foll. (Cd. 6848); Chapter on Domestic Subjects in the *New Teaching*, edited by Professor J. Adams (1918).

for girls, but that football was quite unsuitable. It was pointed out, however, that in most of these games the style of play would be rather different for girls, and that, as a rule, girls should play for a shorter time. Several witnesses thought that 20 minutes each way was quite long enough for girls in hockey and lacrosse matches. There was general agreement that games should form part of the ordinary curriculum for girls in secondary schools, provided that precautions were taken to prevent undue fatigue of body or mind. Release from games should only be granted in individual cases on the recommendation of the medical officer.

Special emphasis was laid on the necessity for exercising great care in the matter of games for girls between the ages of 14 and 16. Puberty imposed a heavy strain on the girl, physically and mentally, and she should be protected as much as possible by the establishment of rules forbidding strenuous physical work during the monthly periods. Careful inquiry seemed to have established the fact that all girls were naturally disinclined for active exercises, whether gymnastics, dancing, or games, for the first few days of the period. In most cases no evil results might follow exercise, but it was much better to take reasonable precautions. Teachers should inculcate a sense of the responsibility of playing within reasonable limits, and of not playing at all when in an unfit condition. Adolescent girls might continue to play the same games as before, but should play for shorter periods. Extra strain should be avoided for all girls; and anæmic girls, in particular, required exceptional treatment. Several witnesses pointed out that the principle of team work in games required to be applied with caution in girls' schools, as there was a danger that girls, with their strong sense of duty, might over-exert themselves.[1] Many witnesses mentioned that there was a noticeable tendency in some girls' schools to over-organise the games. This was partly due to the zeal and conscientiousness of the games mistresses, who were sometimes inclined to supervise and direct too much. It was urged that games in girls' schools should be made more free and spontaneous, as under present conditions they were infected too much by the feeling of the lesson-time, and often imposed almost as heavy a strain on the pupils as ordinary lessons. Most witnesses, including several parents, thought that the general conscientiousness of girls extended also to their sports and that there was a danger that some pupils, who were over conscientious and docile, might exhaust themselves physically and mentally for the supposed good of the school. There was general agreement that special care was required in organising games for girls in day schools, and more especially in co-educational day schools. The pupils attending day schools frequently came from long distances, and the girls often had to perform a certain amount of housework in their homes. The games played after school hours required, therefore, to be watched with care, and due

(1) For team work in boys' schools see Norwood and Hope, *Higher Education for Boys in England* (1909), pp. 435 foll.

regard should be paid to the previous strain which had been undergone by the girls in the normal daily routine at home and in school and in the journey to and from school, and also in regard to the nourishment taken and the general physical condition. It was pointed out that the physique of many of the girls attending day secondary schools was often less robust than that of girls in boarding schools.[1] Such girls were much in need of games, but not necessarily of the same type, nor to the same extent as physically stronger girls. In the light of our evidence we would suggest that the whole question of games in day schools for girls and co-educational day schools requires further investigation. While we think that suitable games should form part of the ordinary curriculum for girls, we are not convinced that they should be made compulsory for all pupils, particularly in day schools.

(b) *Physical Exercises.*

(55) There was general agreement that boys and girls should be separated for physical exercises, as for games, after the age of 11 or 12, as the average girl arrived at the state of puberty between 12 and 15, and after puberty anatomical differences made separation desirable. The physical training of adolescent boys and girls should take on the distinctive masculine and feminine characteristics suited to the sex differences, which at that period began to be pronounced. The bodily development of girls made them aim at a greater degree of smoothness and expressiveness in their movements and postures, while the boys' ideal was manhood with its physical characteristics of strength and energy. Women's movements were the direct expression of their emotional responses in a higher degree than men's movements ; and this explained their inclination for a greater subtlety of posture and movement and their liking for forms of exercise, such as dancing, which gave opportunities for expression. There was general agreement that girls were readily fatigued at this age and were not muscularly strong, so that all attempts to cultivate muscular strength unduly were harmful. Girls were naturally less apt than boys for exercises involving combination or competition, and stood, therefore, in need of a certain amount of team work to encourage such capacity. The aim in general should be to cultivate strength and precision among boys, and suppleness, grace, and lightness of movement among girls. A similar differentiation was necessary in the period after puberty ; and for boys of this age stress should be laid on vigorous and energetic exercises, which served to strengthen courage and self-reliance. For girls, on the other hand, the degree of difficulty in the exercises should be increased in rather a different way. Strength and endurance should be

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(1) *cf.* Annual Report of the Chief Medical Officer of the Board of Education (1920) (Cd. 1822), p. 187, (Games in Secondary Schools for girls), and also Report of the Committee formed in October, 1921, at the instance of the College of Preceptors, to consider the effect of Physical Education on Girls. (Printed in *Educational Times* for September, 1922, p. 382.)

cultivated only so far as they did not adversely affect freedom and elasticity of movement. The gymnastic exercises should consist of movements less sharply defined and limited than those of young men, and the sense of rhythm, which was well marked in girls, should be developed. Several witnesses thought the time devoted to the physical training of girls in many secondary schools was entirely inadequate. Having regard to the fact that in many girls' schools games were not compulsory, a number of witnesses suggested that more frequent periods should be assigned to physical training, including dancing. One witness thought the ideal arrangement would be that every girl should have 20 minutes a day with the expert teacher of physical exercises and a few movements after each lesson in the form room under the supervision of the ordinary form mistress.[1]

Several medical witnesses pointed out that, as "postural" defects, and more especially the tendency to spinal curvature were more common among girls than among boys, special care should be devoted in girls' schools to remedial gymnastics, including special drill. We think, however, that more attention should also be given to remedial gymnastics in boys' schools. In the same way special games should be arranged on the advice of the school medical officer for delicate and so-called backward girls; and much wider latitude should be given in regard to the time to be spent in games by individual girls.

(C.) Upper Part of the School (for Pupils from 16 or 17 to 18 or 19).

(56) The outstanding feature in the present arrangements for the organisation of this part of the school is the facilities given by Chapter VIII. of the Board's Regulations for the organisation of Advanced Courses in Science and Mathematics, Classics, Modern Studies, Geography, and a combination of Ancient and Modern Studies. The criticisms offered by our witnesses on the present arrangements for these Courses may be summarised as follows:—

(1) That they were unduly rigid.

(2) That they were too "academic," being based on a traditional grouping of subjects rather than on present needs.

(3) That the standard of attainment at which pupils were at present allowed to begin the Advanced Course work was not sufficiently high.

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(1) It is perhaps worth pointing out that this arrangement is recommended in a memorandum on Physical Education issued by the Scottish Education Department in 1920 as suitable for both Elementary and Secondary Schools. (*See* Sections 26 and 56). "At frequent intervals during the day, at least twice in the forenoon and once in the afternoon, the pupils should be given simple corrective exercises and simple massive movements that will quicken the circulation and respiration, and thus aid in restoring full activity of function."

(4) That a heavy strain might be imposed on some girls who, beginning their Advanced Course at the age of 16, sat for the Second School Examination at the age of 18.

(i) Many witnesses drew attention to the rigidity of the present Regulations. Only five Advanced Courses were provided, and, though it was true that within each of these a considerable amount of latitude was allowed, no provision was made for girls and boys who might desire to offer unusual combinations of subjects.[1] This lack of freedom of choice bore especially hardly on girls' schools, where a certain proportion of pupils, who had taken the First School Examination, might wish to remain on at school and take an Advanced Course without working expressly for the Second School Examination. The classification on which the Courses were based was unfavourably criticised by several witnesses, who pointed out that Mathematics, for example, should not be tied indissolubly to Natural Science in its present limited sense, and that provision might well be made for a Course in which Mathematics could be combined with political and economic theory. Many witnesses also drew attention to the desirability of providing Courses in which Music, or Drawing and Painting, might be offered as principal subjects.[2]

(1) It is worth pointing out that the advanced courses are not intended to cover all the higher work of the school. Individual pupils may, of course, follow unusual combinations.

(2) It will be seen from the subjoined statistics that of those girls who take Advanced Courses the great majority take Modern Studies.

Advanced Courses recognised for 1921–22 *in Secondary Schools in England and Wales on the Efficient List.*

	For Boys.	For Girls.	For Boys and Girls.	Total.
Number of recognised Secondary Schools - - - - -	533	588	338	1,459
Number recognised for Advanced Courses - - - - -	163	120	57	340
A Courses (Science and Mathematics) - - - - - -	147	41	42	230
B Courses (Classics) - - -	35	2	—	37
C Courses (Modern Studies) -	44	101	35	180
Total - - - - -	226	144	77	447

Included in the above list are 71 boys' schools, 138 girls' schools and 7 mixed schools, which are not on the Board of Education's Grant List for 1921–22. Of these only one school (a girls' school) has an Advanced Course (A) recognised.

In 11 schools (9 boys' schools and 2 girls' schools) Advanced Courses of all three types are recognised. Two Courses are recognised in 49 boys' schools (A and B Courses in 17, A and C Courses in 32), in 27 girls' schools (A and C Courses) and in 16 boys' and girls' schools (A and C Courses).

A few witnesses also suggested that Courses should be provided in Commercial Subjects and in Economics and the Elements of Political Philosophy. As regards suggestions of Advanced Courses in Commercial Subjects, we note that the Board, in their Memorandum on these Courses issued in 1919, explained that they had carefully considered suggestions for a separate Course in these subjects. It was pointed out that the existing definition of the content of the Course in Modern Studies was sufficiently flexible to cover any Commercial Course suitable to the scope of a Secondary School. (Circular 1112, § 24.)

(ii) Several witnesses pointed out that the Advanced Courses, in their present form, seemed to have been designed mainly for pupils proceeding to the Universities and not going directly into occupations on leaving the Secondary School. In their view, the Secondary School should provide an education that was complete in itself, and the Advanced Courses should accordingly be remodelled so as to meet the needs of pupils who were entering occupations immediately on leaving school. Many witnesses suggested that Advanced Courses might be arranged in separate subjects instead of in groups of subjects. The Second School Examination could then be taken in subjects, thus leaving a wider choice for girls and devolving the responsibility for a suitable combination of subjects on individual head mistresses.

(iii) Some witnesses were of opinion that the standard of attainment at which boys and girls are at present allowed to begin the Advanced Course work was not sufficiently high. The Board's regulations provide that before proceeding to the Advanced Courses pupils should have obtained the School Certificate, but several witnesses pointed out that the standard necessary to obtain the ordinary certificate in the First School Examination was low, and suggested that students should be required to have a really good School Certificate before being allowed to proceed to higher studies. In this connection attention was directed to the temptation offered by the higher grants at present payable for the Advanced Courses.

We observe, however, that the Board's regulations do not absolutely insist on candidates for Advanced Courses having actually passed the First School Examination, and we understand that in certain instances the Board accept the statement of the head master or head mistress that an individual pupil has attained the standard of the First School Examination. On the whole, we do not think that great weight need be attached to this criticism, as we gather that, in actual practice, there is a tendency to raise the standard of entrance to an Advanced Course after it has been established for a few years in any really efficient school. Moreover, some schools will not admit pupils to an Advanced Course until they have reached the Matriculation standard.

(iv) Other witnesses drew attention to the strain imposed on many girls, who began their Advanced Course at about the

age of 16 and took the Second School Examination at the age of 18. We observe, however, that there is no provision in the existing regulations to prevent girls or boys from beginning their Advanced Course at the age of 17 or later. We further understand that it is in no sense obligatory for pupils taking Advanced Courses to sit for the Second School Examination. We have recommended elsewhere that girls as a rule should not be encouraged to take the First School Examination before the age of 17, and this suggestion, if generally adopted, would obviate the danger of over-pressure in many cases.

(57) On the whole, we are inclined to attach weight only to the first and second of these criticisms. The evidence which we have received points to the fact that the existing courses are unduly academic and not sufficiently flexible. They do not seem to make sufficient provision for groups of pupils, and more especially girl pupils, who will not be going on to the University or who may desire to offer unusual combinations of subjects, such as Biology and two modern languages. It is especially noticeable that the claims of the aesthetic subjects are at present almost completely ignored. We fully recognise the benefits that have accrued to Secondary Education from the institution of Advanced Courses. The provision of such Courses has undoubtedly resulted in a great increase in the number of boys and girls who remain at school after 16 years of age. There are also signs that these Courses have had a beneficial effect on the type and standard of work throughout the schools. Many schools, since the establishment of such Courses, are doing relatively advanced work of a post-Matriculation character, which, until a few years ago, was unknown except in the better schools. Further, in many schools groups of pupils and individual pupils are allowed to attend part of the Course, so that the benefit accruing from the provision of this relatively advanced instruction in certain subjects is not confined to the group of pupils who are taking the full Course. The Courses have also exercised a stimulating effect on teachers, many of whom are reading more widely, and taking a keener interest than formerly in their own special subjects, in view of the fact that they now have the opportunity of giving fairly advanced instruction to their pupils. We gather that very considerable latitude is exercised by the Board in administering the regulations, and that there is much greater variety within the limits of each of the five prescribed Courses than would appear at first sight. We are therefore entirely convinced that the policy of subsidising advanced work in schools is good for both boys and girls, but we strongly recommend that the existing arrangements should be made more flexible, so as to provide a wider field of choice, more especially for girls, who may desire to specialise in the study of Art or Music [1] with suitable ancillary subjects, or to

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(1) We understand that experimental Courses in Music and in Art have been recognised by the Board at several girls' schools.

take a Course including a branch of Science, such as Biology, with certain literary subjects. We would suggest for the consideration of the Board that steps might be taken to insert a clause in the regulations for Secondary Schools, conferring on the Board power to approve at their discretion, syllabuses for Advanced Courses in suitable combinations of subjects, including Art and Music, submitted by the school authorities for groups of pupils.

We would suggest that the question of making Drawing (Art) a principal subject for the Second School Examination should be thoroughly explored in all its bearings.

CHAPTER III.

PART I.—GENERAL PHYSICAL AND MENTAL DIFFERENCES BETWEEN BOYS AND GIRLS AND POSSIBLE CAUSES OF SUCH DIFFERENCES.

(A) GENERAL ANATOMICAL AND PHYSIOLOGICAL DIFFERENCES.

(58) There is a mass of traditional and conventional doctrine regarding physical and psychological differences between boys and girls, and a corresponding lack of precise observation and comprehensive study. An examination into the nature and extent of these differences, more particularly as they affect the brain and the nervous system, is all the more necessary if we are to return any adequate answer to the present Reference. We shall, therefore, begin by summarising such exact knowledge as is available regarding the anatomical, physiological, and psychological differences between the two sexes.

Anatomical Differences.[1]

(59) In the earliest years the male child is generally larger and heavier than the female. He has a larger and heavier skeleton; he has a larger and more developed muscular system; and his heart, lungs, liver, and other organs are also larger.

There appear to be three points in which a physical difference may be noted between boys and girls from the age of 10 to that of 18:—

(1) Rate of Growth;
(2) Date of Adolescence;
(3) Anatomical Age.

In addition to these points of difference, which are observable before puberty, a fourth ground of physical divergence becomes noticeable after puberty, namely:—

(4) The Composition of the Blood.

(1) An investigation recently conducted among children in Glasgow showed that from the age of 5 to that of $11\frac{1}{2}$ boys were slightly taller and heavier than girls; from $11\frac{1}{2}$ to $13\frac{1}{2}$ girls were slightly taller and heavier than boys; at $13\frac{1}{2}$ boys regained, and rapidly increased, their superiority. There have been numerous other investigations in this country, all pointing in the same direction. These have been well summarised by A. Greenwood (*Health and Physique of School Children*: P. S. King, 1913)[2]. Several observers believe that the onset of the second dentition in children is preceded by a period of rapid growth; and most

(1) See the full statement of the anatomical and physiological differences between the sexes in the Memorandum by Dr. J. G. Adami (Appendix V).

(2) *cf.* Stanley Hall, *Adolescence* (1904), Chapter I. (New York, D. Appleton & Co.)

observers recognise a slackening of growth in girls between 8 and 9 and in boys between 9 and 11. The period of rapid physical growth, which comes just before puberty, is thus preceded by a period of quiescence lasting from one to two years. These variations in rhythm are more obvious in regard to stature than they are in regard to weight, as weight is peculiarly liable to accidental variations. Boys increase in height more rapidly than girls up to about 9 or 10 years of age; while girls increase more rapidly than boys from about 10 years of age to 13½ or 14. There seems to be more variation in the statistics regarding the weight of the two sexes, although there is an agreement in the evidence that somewhat similar changes may be traced in the different periods. The most recent observations are those of Mr. F. A. Mecham, Department of Education, New South Wales (in the Annual Report of the Principal Medical Officer for the year 1918-1919, p. 69), according to which the advantage of weight is retained by boys until the age of 11½ years is reached. There is a steady increase in the weight of girls, as compared with that of boys, for each half year until 15½—an increase which reaches its maximum at 13½ years, when girls are found to be 7·37 lbs. heavier than boys. After this boys increase in weight more rapidly, until at 15½ boys become heavier than girls. At 16 the boy weighs about 2 lbs. more than the girl of the same age.

Differences between the sexes in stature and weight are more noticeable than those in chest dimensions or cranium volume. The greater growth in the stature of girls precedes the onset of adolescence; and it seems probable that the physiological changes which occur when the condition of pubescence is completely established lead to changes in the metabolism of the body, particularly in regard to the fixation of salts. Recent researches seem to indicate that changes in the form of the head are very slight or altogether absent in girls of 16 years of age and upwards, whereas they continue to be noticeable in boys till maturity.

(2) Adolescence in girls is as a rule earlier by one or two years than in boys. Recent researches in regard to the physical phenomena of pubescence seem to show that the physiological age of many children is not in direct relation to their chronological age, and that stature and weight vary more closely with the physiological than with the chronological age. Girls and boys who pass rapidly through the stages of pubescence and develop quickly are subjected to the greatest strain in the accommodation of their circulation to the new conditions, and require more careful supervision in mental and physical work. Such supervision is even more necessary for girls than it is for boys. In general, in comparing boys with girls, it may be noted that the girl may already be almost adult, while the boy is still adolescent, and that the initial periods of strain fall at different periods. The various curves of growth obtainable from mass statistics seem to

indicate that attention should be paid to physiological rather than to chronological age, and that during periods of rapid growth, whether seasonal or due to the onset of pubescence, the strain of effort should be lightened as much as possible.

(3) Anatomical age, as shown by teeth, nails, hair, and other factors, indicates that girls are developed in advance of boys to the extent of about 6 months at 5 years of age, and of about one year at the age of 15.

(4) The difference in the composition of the blood does not become apparent till after puberty, or, in other words, only in the later years of Secondary School life. Up to the age of puberty little difference has hitherto been detected in the composition of the blood of growing boys and girls, whether in the number of red and white corpuscles, or the amount of hæmoglobin, or the specific gravity. Careful researches have shown that the blood of adult men contains less water and more red corpuscles, and is consequently of a higher specific gravity, than that of adult women. As regards the amount of hæmoglobin, Leichtenstern found that the average amount in women, from the age of 11 to that of 50, was 8 per cent. less than it was in men during the same period. McKendrick found an average of 14·5 per cent. of hæmoglobin present in men's blood, as compared with 13·3 per cent. in the blood of women. As regards the specific gravity of the blood, Lloyd Jones, as the result of a very extended study, found that there was a distinct decline in this respect in women after puberty; that the specific gravity in women was lower at 17 years of age than it was at 14; and that between the ages of 17 and 45 it was lower than at the age of 14, and about three degrees lower than in men.[1]

The materially lessened amount of hæmoglobin in the woman's blood after puberty is significant: hæmoglobin is the agent of internal respiration, the oxygen carrier of the system; and oxygen is the great liberator of energy. It is therefore evident that the male is the better prepared for a more abundant liberation of energy with less exhaustion or fatigue.

At birth, except for the organs of generation, there may be little to distinguish the male child from the female, but progressively during childhood and most of all during adolescence the secondary sex differences become more and more manifest—alike in extent and distribution of hair, in conformation of the pelvis and other skeletal parts, in the breasts, larynx and vocal chords, and in other respects.

But, while this is the case, minute microscopic study of the various organs in the two sexes shows that the differences, except in the essential organs of sex, are quantitative and not qualitative. There appears to be no difference in the anatomy of the

(1) Havelock Ellis, *Man and Woman*, 5th ed., pp. 266-270. (Walter Scott Publishing Co.). *cf.* Leichtenstern, *Untersuchungen über den Hämoglobingehalt des Blutes*, Leipzig, 1878.

brain and the special sensory organs. The average brain of the males of any branch of the human race is larger than the average brain of the females of that branch. This greater average size of the brain, while closely associated with the larger size of the body, might be supposed to indicate that the male in general is more generously supplied with cortical nerve cells and co-ordinating fibrils, or, in other words, with the apparatus of intellect. There seems, however, to be no positive demonstration either that this is the case, or that (on the contrary) there is a greater amount of " padding " in the grey matter of the male brain. Even if it be admitted that there are more abundant nerve cells in the larger male brain, this would not justify any definite conclusions, since much of the activity of the brain is associated with non-intellectual processes such as the co-ordination and control of muscular movement. It is, therefore, at present impossible to infer from anatomical considerations that the average male is potentially more intellectual than the average female.

Physiological Differences.

(60) If the essential organs of sex either fail to develop or are removed in early life, the individual tends to assume an intermediate or neutral state; the secondary sexual characters peculiar to the sex fail to develop, or revert towards those of the other sex. Obviously the development of these secondary sexual characters is bound up with the presence and function of the sex organs. The organs of generation exert a profound influence upon the body in general. The investigations of the last thirty years have led physiologists to the conviction that this influence is not exerted primarily through the nervous system, but through the agency of an internal secretion which differs in its properties in the two sexes. Throughout life the sex organs in men and women elaborate and discharge into the surrounding lymph, and so eventually into the blood stream, a substance or substances which, carried to the various parts of the body, modify the growth and activities of the other tissues and organs, and exert a selective influence upon those tissues and organs which are concerned in the production of the secondary sexual characters.

The organs of sex are, however, not the only " endocrine " glands, providing an internal secretion, that affect the bodily metabolism. There is another group of glands—embracing the thyroid, the thymus, the pituitary, the pineal and the adrenal glands—all of which are materially affected by the state of the sexual glands proper, and themselves through their secretions exercise a very material influence on the activities of the sexual glands and, either directly or indirectly, on the secondary sexual characters. Physiologists are engaged in disentangling the relationships and mutual activities of the various glands of this group. But it may be safely asserted that disorders of the sex organs in women are frequently associated with disturbances of

the thyroid gland, and it has been definitely established that there is an intimate relationship between the ovarian and thyroid glands in the feminine sex. Thyroid disorders of the same type are comparatively rare in the male, in whom there appears to be a closer association between the organs of sex and the adrenal glands.

Recent researches conducted by Dr. Blair Bell seem to indicate that there is another important difference between the male and the female, which shows itself with the onset of puberty—that in the female the process of calcium metabolism becomes unstable, whereas in the male it remains relatively constant. Dr. Blair Bell's view, which has not yet been generally accepted by physiologists, gains some support from the observed fact that the condition of osteomalacia or extreme softening of the bones (as a general, distinct from a local, condition), is almost entirely confined to the female sex. To defective calcium metabolism may also be ascribed that lesser grade of softening of the bones, leading to spinal curvature and postural defects, which is so common in girls and so relatively rare among boys. To a deficiency in calcium may also be ascribed, at least in part, the greater nervous excitability of the feminine sex.

Physio-Psychological Considerations.

(61) The problem of the psychological difference between the sexes may now be approached in the light of these anatomical and physiological data. It has already been pointed out that anatomically, save in the matter of the average size of the brain (and spinal cord), no difference between the sexes has thus far been determined. Is there any evidence that the nervous system is affected in its function, directly or indirectly, by the endocrine activities of the essential organs of sex, and that in this way a different trend may be given to the cerebral functions in the two sexes?

The fact that with atrophy or removal of the ovaries, before or during the period of sexual activity, there is developed not merely a coarser and more masculine skin and a more masculine voice, but also a masculine loss of reserve and some approximation towards a masculine bluntness of speech, is clear evidence that the organs of sex have an influence upon the mental state in women. A corresponding change is observable in the eunuch, who exhibits a lack of those mental qualities which we denominate virile. But whether the action of the genital hormones is direct upon the nervous system, or indirect, through the stimulation of other endocrine glands to increased excretion, is not as yet fully determined. It is known that the secretion of the adrenal glands has a striking effect upon the sympathetic nervous system, and that hyperthyroidism is accompanied by a train of changes in the nervous state of the individual, characterised by tremors, fearfulness, and enhanced tendency to emotion. But it has still

to be determined whether the long-continued influence of the testicular hormones acting upon the nervous system, sets up in the brain a different response to that exerted by the ovarian hormones, or whether the evidence points rather to a summation of various responses on the part of the endocrine glands and the effects of their hormones upon the central nervous system—a summation different in the male from what it is in the female.

The considerations here given indicate why it is that we are inclined to agree with some of our medical and psychological witnesses that the products of the ductless glands discharged into the blood differ in their proportions in the male and female, and that here perhaps is to be found the clue to the inconsistencies between short laboratory experiments and the general belief that women have, in certain directions, a different kind of mental ability or emotional temperament from that exhibited by men.

It appears to be generally recognised that girls in general are not so strong physically as boys and are more highly strung and liable to nervous strain.[1] Moreover, medical statistics seem to indicate that there is a higher percentage among girl pupils of cases of anæmia, spinal curvature, defective eyesight, and minor physical defects. It should be added that these defects are sometimes caused and often accentuated by sedentary occupations such as needlework.

(B) General Psychological Differences between the Sexes.

(62) Two opposing views appear to be entertained by psychologists and other writers who have expressed opinions on the psychology of sex in its bearing on education. Most writers on education, accepting the views of earlier biologists and working chiefly from *a priori* assumptions, emphasise the importance of sex differences. Professor Welton,[2] for example, believes that the higher the levels reached, whether by individuals or societies, the more strongly marked becomes the essential differences between the sexes, and he goes on to say that " the psychological differences between man and woman are so intimate, so deep and so all-pervading, that . . . if mixed schools are to be justified it must be on grounds other than psychological." In the same way Professor Schuyten,[3] Director of the Educational Laboratory at Antwerp, urges that the teacher who desires to educate individuals rather than treat his pupils as homogeneous masses will find " the first and safest classification that which is based upon sex." On the other hand, writers on education who are

(1) They are, too, more liable to certain nervous or partly nervous disorders—notably chorea, hysteria, and hyperthyroidism. *See* H. Campbell : *Differences in the Nervous Organisation of Men and Women*, 1891. (H. K. Lewis & Co.)

(2) Welton : *Psychology of Education* (1911), p. 137. (London, Macmillan & Co.) Contrast this with Mr. Burt's view quoted on p. 89.

(3) *L'Education de la Femme* (1908). p. 175.

primarily psychologists seem disposed to agree with Professor Thorndike that sex is the cause of only a small fraction of the differences between individuals; the divergencies of man from man and of woman from woman being far greater than those between man and woman. In general, there seems to be agreement among psychologists that the physical characteristics of the feminine sex have a certain indirect effect upon the minds of women and girls. The instincts and interests of women are to some extent associated with their rather greater physical weakness. Many of them still lead relatively sedentary, sheltered lives, and frequently take up inactive occupations and indoor pursuits. They are more susceptible to physical fatigue, both as a result of bodily exertion and as an indirect concomitant of mental effort. They are able to endure prolonged discomfort, but are less able to make short, sharp efforts, or to withstand the sudden strain of brief, intense, and unexpected crises. It is significant from the psychological standpoint that up to the present, despite ample opportunities, no first class genius on the creative side in Music, Painting, or Sculpture has appeared among women, though they have shown executive ability of the first rank in music, acting, and dancing. Again, in Science very few women have attained to the first rank, and in literature women have excelled in certain departments only.[1]

The periodic disturbances, to which girls and women are constitutionally subject, condemn many of them to a recurring, if temporary, diminution of general mental efficiency. Moreover, it is during the most important years of school life that these disturbances are most intense and pervasive, and whenever one of them coincides with some emergency, for example, an examination, girls are heavily handicapped as compared with boys. It is probably in consequence of these physical and physiological disabilities, and, particularly of an especial liability to fatigue (together, it may be, with a greater tendency to emotion and capacity for self-denial), that girls are far more liable to neurotic disturbances and mental breakdown from overwork. Some of these characteristics, which traditional views are inclined to exaggerate, are of course also shared by a certain number of the male sex. Another consideration on which too great emphasis cannot be laid is the very great individual differences which distinguish one girl from another in these respects.

There is some evidence which seems to indicate that children in their earlier years generally show the greatest attachment to the parent of the opposite sex. The boy, until he goes to school, often shows a preponderating affection for his mother; and he may be antagonistic to his father. In some boys these latent or subconscious tendencies may develop in later years into a secretly hostile attitude towards any authority exerted by men. Girls on the other hand seldom appear to come into violent conflict with their fathers, and so may in later life become inclined to be more

(1) *See*, however, p. 93, footnote (2).

submissive in their attitude towards male teachers. This early emotional attitude may appreciably affect the behaviour of the two sexes in later life towards masters and mistresses respectively. Another consideration which should be mentioned as probably throwing some light on the greater submissiveness and respect for authority generally displayed by girls is the less tendency of the female sex towards crime, as disclosed by statistics. Delinquencies of various kinds are, according to official criminal statistics, far more common among men than among women. This greater tendency of men to break away from and infringe established laws and conventions may to some extent help to explain the fact that school boys are often more troublesome and more difficult to control than girls. It also points to deep-seated sex differences in instinctive and emotional tendencies.

(63) Continuous systematic investigations regarding sex differences in cognitive, conative, and affective processes have not, as yet, been undertaken, and we therefore consider it important to summarise the general results obtained by such inquiries as have been conducted in this country and the United States up to the present time. It must, however, be pointed out that inferences based on a comparison of selected groups of boys and girls or of men and women (for example, those attending Secondary Schools and Universities, and therefore largely sorted out by social opportunities or scholastic examinations) should be received with considerable caution and reserve.

One of the first systematic enquiries was that conducted by Miss Helen Thompson of the University of Chicago in 1903. Her range was limited, as the enquiry was confined to about 50 students of Chicago University ranging in age from 19 to 29. Her data appear to suggest that while there are considerable differences revealed in the reactions to tests of simple sensory or motor processes (some in favour of men and some of women), these seemed to disappear as the higher mental levels are approached. In acquired knowledge the differences were still less marked. Miss Thompson summed up her general conclusion as follows :—" The point to be emphasised as the outcome of this study is that, according to our present light, the psychological differences of sex seem to be largely due, not to difference of average capacity, nor to difference in type of mental activity, but to differences in the social influences brought to bear on the developing individual from early infancy to adult years. The question of the future development of the intellectual life of women is one of social necessities and ideals, rather than of the inborn psychological characteristics of sex."[1]

(64) The only investigation of the kind which seems to have been undertaken in this country was the enquiry regarding mental differences between the sexes conducted in 1911 by

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(1) *The Mental Traits of Sex,* p. 182. (University of Chicago Press, 1903.)

Mr. Cyril Burt and Mr. R. C. Moore.[1] Their evidence was mainly derived from experiments upon—

(*a*) children in Mixed and separate Departments of four Elementary Schools in Liverpool;

(*b*) children from Mixed and separate Departments in a number of Elementary Schools in London;

(*c*) a small group of men and women students at Liverpool and Cambridge Universities.

There were thus no data for the important period between the ages of 14 and 18. The numbers of children and adults observed were relatively small (about 200 children and 100 Training College students); and the ages of the children in the main groups were between $12\frac{1}{2}$ and $13\frac{1}{2}$, when the normal relations of the sexes are temporarily reversed in respect of height and weight.

These experiments and observations upon children and adults were concerned with intellectual and emotional processes, and ranged as far as possible from the lowest mental levels to the highest. The differences revealed by tests of cognitive or intellectual processes were throughout smaller than those disclosed by measurements of physique. The divergences were largest on the lowest levels, which involved only simple sensory or motor processes. In tapping tests, in reaction time-tests and apparently also in tests of motor precision, and certainly in tests of endurance of motor fatigue, males were superior. In most sensory tests, especially in tests of touch, taste and colour, females were superior. In visual discrimination of brightness and form as distinct from colour, males seemed to have the advantage. In other forms of vision and in hearing it was difficult to detect with certainty any sex differences at all. Among the intellectual processes belonging to the higher mental levels there was a difference in memory. In sheer retentiveness, especially in its lower and more mechanical forms, girls seemed to surpass boys, and women to surpass men. This difference might possibly underlie the traditional view that women were the more imitative and men the more creative. In tests of ingenuity men seemed to be as clearly superior as were women in tests of assimilative power. Mr. Burt's experience with his research students corroborated the common view that constructive force and initiative came chiefly from the men, while the women students almost without exception worked conscientiously and industriously along lines laid down for them. On the higher intellectual levels, and in tests of general intelligence and ability to reason, the differences were extremely small between boy and girl pupils, and seemed to vary from period to period and even from year to year. Among adults the evidence was conflicting; and Mr. Burt was reluctant to draw

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(1) Burt and Moore: *The Mental Differences between the Sexes*. Reprinted from the *Journal of Experimental Pedagogy* (1911).

definite conclusions from experiments conducted on a relatively narrow basis.

Mr. Burt pointed out that emotional differences between the sexes were extremely difficult to test, and that the results obtained by different methods and different investigators appeared at first sight to be discrepant. He and Mr. Moore had found that women were more emotional, whereas Miss Helen Thompson had ascertained that American men showed more emotional disturbances than American women. He suggested that the apparently conflicting results attained by different investigators on this subject might be reconciled by the following statement :— that subjectively the emotions of men might be profounder and more prolonged, but in their outward expression the emotions of women might be more sudden and intense. It would, however, always be difficult to decide how far these differences were primary, and how far they were merely secondary to differences in physique and environment. So far as they were inborn, sex peculiarities in men might perhaps be traced chiefly to differences in the relative strength of the common hereditary instincts. The aggressive instinct, for example (pugnacity with its correlated emotion of anger), the instinct of acquisitiveness, and possibly the instincts of self-assertion and constructiveness, seemed stronger in males; while the milder instincts—secretiveness with its correlated emotion of fear, the maternal or protective instinct with its correlated emotion of tenderness, and perhaps also the instincts of self-subjection and gregariousness—appeared to be more intensely developed in females. Mr. Burt pointed out, however, that these differences were only slight and relative, and that the same instincts were present in each sex. The profound differences in interest and outlook which obtained between the sexes in most civilised communities were probably due, not so much to inborn differences in intellectual capacities, as to the inevitable bias imparted to the small initial differences in instinct and emotion by the larger differences in physique and social environment and tradition. The nature of the emotions predominant in either sex, and the kind of objects arousing emotions, appeared to differ even at a very early age, and these differences seemed to increase with increase of age. In general, the differences in emotional capacities were found to be larger than divergences in higher intellectual capacities, but they were not so large as the sex differences in certain physical qualities and in certain processes of sensation and movement.[1]

In a memorandum which he sent to the Committee Mr. Burt summed up his general conclusions as follows :—

> " Throughout it will be observed that evidence for large innate sex difference in mental constitution or educable capacities is very difficult to discover.

(1) A similar conclusion, based chiefly upon tests of higher intellectual processes, is expressed by Cohn and Dieffenbacher, *Untersuchungen über Geschlechts-, Alters-, und Begabungs-Unterschiede bei Schulern*, pp. 169 foll.

> There are important physical differences (though these perhaps affect only a small proportion of the whole group to a significant degree); there are also important differences in temperament and emotion; there are, too, fairly broad differences due to training and tradition. But on the higher intellectual levels, at any rate before adolescence is completed, inherent sex differences seem undoubtedly small. The bearing of psychological conclusions upon sex differentiation in the curriculum is thus comparatively slight. Whether the training offered in Secondary Schools to girls should differ from that given to boys is a question which must be decided by other than psychological considerations—by our views, in fact, both as to the ideals to be aimed at in all education, and as to the parts which men and women should (or in practice will) play in a civilised community."

(65) Professor Thorndike, of Columbia University, after examining the available data bearing on the question of sex differences in ability, summarised his conclusions based on the results of objective tests as follows[1]:—"The most important characteristic of these differences between the sexes is their small amount. The individual differences within one sex so enormously outweigh the differences between the sexes in these intellectual and semi-intellectual traits that for practical purposes the sex difference may be disregarded. As is well known, the experiments of the past generation in educating women have shown their equal competence in school work of elementary, secondary, and collegiate grade. The present generation's experience is showing the same fact for professional education and business service. The psychologists' measurements lead to the conclusion that this equality of achievement comes from an equality of natural gifts, not from an overstraining of the lesser talents of women.

In detail the measurements showed a slight inferiority of the male sex in receptivity, and a slight superiority in the control of movement and in thought about concrete mechanical situations."

In regard to sex differences in traits not measured objectively Thorndike summed up his conclusions as follows:—"On the whole the differences reported in the case of the less easily measurable features of intellect, character, and behaviour are of the same order of magnitude as those found in objective tests. They do not require any amendment of the general rule that sex is the cause of only a small fraction of the differences between individuals. The differences of men from men and of women from women are nearly as great as the differences between men and women."[2]

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(1) Thorndike: *Educational Psychology* (1914), Vol. III., p. 184, and *Educational Psychology* (*Briefer Course*), (1914), pp. 345-346. (Published by Teachers' College, Columbia University.)

(2) *Educational Psychology* (1914), Vol. III., p. 205.

Professor Thorndike considers that two apparent sex differences in instinct are worthy of special attention. "The most striking difference in instinctive equipment consists in the strength of the fighting instinct in the male and of the nursing instinct in the female. No one will doubt that men are more possessed by the instinct to fight, to be the winner in games and serious contests, than are women; nor that women are more possessed than men by the instinct to nurse, to care for and fuss over others, to relieve, comfort and console. . . . The out-and-out physical fighting for the sake of combat is pre-eminently a male instinct and the resentment at mastery, the zeal to surpass and the general joy at activity in mental as well as physical matters seem to be closely correlated with it."[1] He points out that what is often described as 'women's dependence' is "probably only an awkward name for less resentment at mastery." The actual nursing of the young seems likewise to involve instinctive tendencies to care for others. "The existence of these two instincts has been long recognised by literature and common knowledge, but their importance in causing differences in the general activities of the sexes has not." These inborn differences are accentuated by training, since boys play more with boys and are trained more by men, while girls as a rule are trained by women. "A reversal of training by which girls would be surrounded by the social milieu now affecting boys would lessen the sex difference, as is often observable in isolated cases." Nevertheless if the environment of boys and girls were absolutely similar, these instincts would produce "sure and important differences between the mental and moral activities of boys and girls."[2]

Differences in the interests of the two Sexes.

(66) The results of systematic investigations on groups of men and women conducted by Jastrow, Burt and Moore,[3] seem to point to the fact that on the whole women are more interested in their immediate surroundings and in concrete objects whereas men have a greater tendency towards the abstract. Jastrow summed up the results of his investigation, which were on the whole confirmed by a later investigation by Moore and Burt, as follows:—

> "The feminine traits revealed in this study are attention to the immediate surroundings, to the finished product, to the ornamental, the individual or the concrete, while the masculine preference is for the more remote, the constructive, the useful, the general and the abstract."[4]

([1]) *Educational Psychology* (1914). *Op. cit.* III., pp. 202–203.

([2]) This view as to the greater development of the emotional side in woman was emphasised by Dr. Blair Bell, who was of opinion that, whereas a man can be healthy and happy in work in which the emotions play no part, a woman is rarely happy unless her emotions are able to find some scope.

([3]) *Educational Psychology* (1914), Vol. III., p. 205.

([4]) *Psychological Review*, Vol. III., page 68. Compare also A. Wreschner: *Vergleichende Psychologie der Geschlechter, Wissen und Leben*, 1911, IV, xi, pp. 731 foll., xii, pp. 823 foll.

It appears from the evidence furnished by examining bodies, teachers, and other persons concerned in the work of Secondary Schools, that there are noticeable differences in the average performances of boys and girls in certain subjects, such as Mathematics and English. Several of our psychological witnesses, more especially Professor Nunn, explained these differences as due not to any divergence of educable capacity, but to divergence of interest. In other words, boys and girls were not equally drawn to the same things. These differences in interest are perhaps largely due to those differences in emotion and instinct between the two sexes which we have already described. Professor Nunn stated that it was uncertain how far this divergence in interest, which was not wholly due to innate capacity, but was also due to environment, was biological in origin, and how far it was accounted for by the fact that boys and girls were from their earliest days subjected to different traditions. He thought that the differing traditions probably accentuated a real, though not necessarily great, biological difference. Probably the well-known formula that the male was the greater expender and the female the greater conserver of energy covered all the differences that were not sexual in a narrower sense. It might also account for the greater intellectual vigour and adventurousness with which boys were commonly credited.[1]

Variability within the Sexes.

(67) The available psychological evidence appears to indicate that variations between individuals of either sex are, for educational purposes, greater than those between the average of the two sexes. Mr. Burt, for example, is of opinion that the teacher will only find sex differences in a few isolated functions, such as memory, literary and mathematical ability, conduct, interest, and "general emotionality." If the teacher considers the individual personalities of his pupils, he will find many differences in emotional and moral characteristics to which difference of sex may supply an obvious clue; nevertheless instances of this order are so obvious that the teacher must not forget that other causes are at work producing individual variations which may completely submerge the tendencies originated by differences of sex. Within one and the same sex the range of individual variation is, for most mental characteristics, so enormous as almost to obliterate the smaller group differences. Moreover, there is some evidence to show that in many, if not in most respects, the variability of the male sex is somewhat higher than that of the female. Professor Thorndike, for example, as the result of careful investigations, found that, except between the ages of 12 and 14 (the two years nearest the age of puberty for girls),

(1) An interesting review of emotional and moral differences, based on a statistical analysis of replies to questionnaires, will be found in Heymans: *Die Psychologie der Frauen.*

boys were more variable than girls.[1] He thought that the greater variability of girls in these two years was probably a result of sex-differences in mental growth. Women appear to cluster more closely about the average for their type than men. Attention has frequently been called to the fact that the male sex not only shows the higher percentage of geniuses of almost every type, but also includes the larger number of criminals and mental defectives.[2] This assumption of a greater variability within the male sex was to some extent corroborated by several witnesses, who pointed out that examination results and other evidence seemed to indicate that boys were inclined to break away more between the upper and lower extremes in most manifestations of ability, while girls kept closer to the norm.[3] Some good authorities, however, deny the originality even of these tendencies, and ascribe them entirely to external causes and to the fact that girls (from their earliest years) are shepherded along the middle path and are not allowed to diverge towards extreme courses. On the other hand, they may be due to the greater adventurousness of the boy, and to the difference of physiological functions in the sexes. It should be mentioned that many practical teachers adduced evidence corroborating the greater variability within the male sex.

C. General Differences in the Educable Capacity of Boys and Girls observed by Teachers and Examiners.

(68) Having given an account of the main conclusions arrived at by our medical and psychological witnesses in regard to those differences between the sexes, which appear to have some bearing on their educable capacity, we now proceed to describe certain general differences observed by teachers and examiners. This part of the evidence, though interesting and suggestive, should be received with considerable reserve, as it is obviously based on ordinary observations which were necessarily often not very exact and were limited in scope and range.

Moreover there was, on the whole, general agreement among our witnesses that variations in educable capacity between individual members of the same sex were probably greater than any differences between boys and girls as such.

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(1) *Educational Psychology* (1914), Vol. III., p. 194. *cf.*, however, K. Pearson: *The Chances of Death*, Vol. I, chap. viii, p. 256.

(2) This difference in variability entirely invalidates the common comparison of conspicuous individuals. If men varied more widely in mental power, we should naturally expect them to produce historic personalities of greater eminence, quite apart from any other sex differences among the general mass of men and women, and quite apart from their superior opportunities. For this reason in comparing groups selected from the upper part of the intellectual scale, *e.g.*, children in Secondary Schools, we might expect to find sex differences apparently much larger than if we compared groups drawn from the average population.

(3) The measures of variability given for boys and girls respectively in Burt: *Mental and Scholastic Tests*, Tables XXXIX–LXII, confirm this general view by statistical data.

(*a*) Many teachers who had had opportunities of teaching both boys and girls had observed that boys in general were more self-assertive, more original and more constructive than girls, who, though they were more persevering and more industrious than boys, were also more passive and imitative. The boy as a rule was inclined to seek self-expression in investigation and construction, and the girl in artistic and emotional channels. Boys seemed to be more experimental and to have the logical faculty more fully developed. After the age of 12 they generally showed a greater curiosity for exact facts and a keener sense of constructive inquiry. Craftsmanship and art work done by girls might be more patient and finished, but would, as a rule, be less original than work done by boys of the same age.[1] Girls in general seemed to be less able than boys to apprehend and apply general principles and to have less perception of intellectual truth and delight in it for its own sake. They were usually less hard-headed than boys, more interested in detail and more influenced by emotion.

The examiners of the Oxford and Cambridge Schools Examinations Board corroborated these views. In general the girls' work was, in their view, more even and more neatly presented than that of the boys; but it showed less originality, and the best boys' work was higher than the best girls' work. The girls' answers were often more fluent, but tended to irrelevancy. The difference between the work of the two sexes became most noticeable at later ages.

(*b*) Most witnesses were of opinion that girls were more amenable to discipline, had greater respect for authority, and were more inclined to be dependent on their teachers and to accept statements without criticism or examination. Boys, on the other hand, as a rule adopted a more independent attitude towards their teachers, and were in general less tractable than girls. Girls were also, as a rule, more industrious and more conscientious than boys, and less able to protect themselves from overwork. If boys were given too much work, they did not do it; girls were very likely to break down in attempting to do it all. In general the girls' outlook on school life was very different from that of the boy. While the boy lived from day to day, the girl took a more conscientious view of her duties. An overloaded curriculum was thus very likely to cause a certain amount of distress to a girl, as it did not permit her to satisfy the demands of her conscience.

(*c*) Girls appear to be more emotional, more intuitive, and less analytic than boys. Several teachers in co-educational schools had observed that boys seemed to have an analytic and not an emotional bent; and this might account for their apparent superiority in pure and applied mathematics. One head master

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(1) *cf.* Burstall, *English High School for Girls* (1907), p. 13. "Boys are probably more original, girls more imitative; a boy will find a new way to do a thing, a girl accepts what she is taught."

of a co-educational school thought that girls were, as a rule, less able to comprehend and apply a general principle; and other witnesses had observed that girls seemed to have less capacity for grasping essentials rapidly. A girl, when confronted with a given set of facts, would jump to a conclusion and reason back from it to test its accuracy, while a boy normally reasoned forward from the facts to the conclusion.[1] In other words, girls often seem disposed to rely on a certain power of rapid intuition which is more developed in them than in boys, and may to some extent compensate for their apparent inferiority in strict reasoning power. It was also pointed out that girls often seemed to think more in terms of persons than of subjects and were influenced in their attitude towards certain studies by their liking for or dislike of individual teachers.

(*d*) Several witnesses, especially those from co-educational schools, pointed out that the interests of boys and girls seemed to be divergent.[2] The variety of interest of the sexes, which appeared to be largely affected by tradition and environment, had important effects on work. Interest and capacity were so closely connected that the possession of greater interest in a subject might indicate the existence of greater capacity. Several witnesses thought that this divergence of interest explained the subtle and intangible variations both in the attitude of boys and girls to their school work and in the methods of men and women teachers, who had themselves different interests and thus, teaching from different points of view, insensibly influenced the whole outlook and mental attitude of their pupils. Several witnesses, as the result of careful observation of groups of boys and girls over an extended period, were disposed to think that girls had a predilection for literary studies and the Arts rather than for Natural Science, and that, when they did take up Natural Science, they were drawn as a rule to biological studies.

(*e*) Many witnesses had observed that girls seemed to be more easily fatigued, both in body and mind, than boys. It is obvious that the greater staying power of boys probably gives them an advantage in studying difficult subjects, such as Mathematics. Probably for the same reason the strain of examinations seems to be more acutely felt by girls. The evidence submitted to us in regard to the relative liability of boys and girls to fatigue was almost wholly based on the observations of individual teachers. It would seem that this greater liability of girls to mental and physical fatigue may largely account for many of the differences between the sexes in Secondary School work, and it seems most important that systematic research should be undertaken on the whole question of the relative susceptibility of the two sexes to fatigue.

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(1) These differences seem to be confirmed by experimental observations, *see Journal Exp. Ped.* Vol. V., pp. 121–122, "*The Development of Reasoning in School Children.*"

(2) *See* Appendix III.

(*f*) Several teachers in co-educational schools had observed that boys seemed throughout to have more power of concentration than girls at the same stages, thus corroborating Mr. Burt's conclusion that boys were superior in scope and maintenance of attention. This may be partly due to the greater liability of girls to fatigue.

(*g*) There was general agreement that distinct differences were observable in the rate of mental development of both boys and girls, and also that, from the age of about 11½ onwards, there was a difference in the "tempo" of development. Most witnesses thought that it was advisable to make the curriculum sufficiently flexible to reflect this difference. These differences in rate of development are more fully described in the section on minor differences between the sexes at successive age periods.

(*h*) Several teachers thought that girls had often better powers of memory, which might, however, be partly due to the fact that girls were, as a rule, more hard working and more amenable than boys. It will be observed that in this respect the evidence from teachers seems to corroborate the conclusion arrived at by Mr. Burt, that girls were superior to boys in all forms of memory tests.[1]

(*i*) The evidence from teachers and examiners all tended to corroborate the conclusion arrived at by the psychologists, that the variability of the male sex is greater than that of the female. Girls on the whole appear to cluster more closely about the average. It is common, for example, in examinations to find more boys than girls both above the 80 per cent. and below the 20 per cent. mark.

Minor Differences in the Educable Capacity of Boys and Girls at Successive Age Periods up to 18.

(69) In a questionnaire drawn up for the guidance of witnesses we asked their opinion regarding the strong and weak points in the educable capacity of boys and girls, or both—

(i) up to 12 years of age;
(ii) between the ages of 12 and 14;
(iii) between the ages of 14 and 16;
(iv) between the ages of 16 and 18.

We selected these age limits for purposes of general convenience, though we were aware that they were open to criticism on various grounds. We left witnesses free to adopt other limits, if they thought fit. One witness, for example, told us that her experience had led her to the conclusion that girls fell naturally into age groups of odd years, 11 to 13, 13 to 15, and 15 to 17. Before summarising the evidence as to differences at these successive age periods, we may remark that the trend of recent psychology

(1) *See* § 64.

is to regard the transformation of adolescence as simply the culmination of changes that have been inconspicuously developing from the earliest years, and to date the beginning of these modifications much earlier than has hitherto been customary. Recent research has shown that the date of the onset of puberty varies from individual to individual far more than was previously believed. In the same school it is not uncommon to find a girl or a boy of 17 years of age less developed physiologically and psychologically than another of 12. We would therefore emphasise the consideration that, except for the roughest purposes, it is misleading to draw sharp lines of division between successive periods of mental growth in terms of chronological age.

(i) *Differences up to* 12 *years of age.*

(70) Most of the evidence seemed to indicate that at this period there was little difference in the educable capacity of the sexes. Mr. Burt, for example, told us that in Infants' Schools sex differences in reasoning power were almost imperceptible, but that later, owing to a slight precocity in ability to read and use words, girls often seemed to be slightly in advance of boys about the age of 6 or 7. Towards the age of 10 boys tend to outstrip girls; with the onset of puberty girls again develop for a time far more rapidly than boys, although the boys overtake the girls later on.[1] The evidence of teachers in the Junior Departments in which boys and girls were taught together showed that up to the age of 12 boys exhibited rather more independence of thought and greater facility in oral expression than girls. Girls at this age were keen and responsive to good teaching, and frequently had greater facility of expression in writing; they were capable of rather more sustained effort and generally produced more painstaking work than boys. They excelled in patient and persevering attention to details, and in jumping by a rapid process to presumptive conclusions. Boys, on the other hand, tended to be more methodical in their processes of thought, and more critical of their own conclusions; they were less verbose and less diffuse. They seemed less inclined to commit logical fallacies and more alive to the exact content of phrases and forms of statement. Many witnesses had observed that girls had a keen desire for neatness and beauty in their work. Boys and girls were unable at this stage to concentrate for long periods on set tasks, though they might concentrate on some voluntary effort. Both sexes appeared to desire to express themselves through drawing and handicraft rather than through speech from the age of 10 to about 13. Boys, however, often seemed to be readier than girls to work with their hands and showed more interest in mechanical matters. Girls at the age of about 12 or 13 were as a rule distinctly in advance of boys in physical, mental,

(1) The statistical evidence on which these conclusions are based is given in *Journal Exp. Ped., loc. cit. sup.*, p. 121.

and emotional development, in most cases to the extent of at least one year and in some even more. One witness, who had conducted a series of careful experiments bearing on ambidexterity on a large number of Elementary School children under 13 years of age told us that he had found that girls were at least a year behind boys in power to discriminate left from right, and that those girls who did it best generally exhibited greater mathematical ability in their later school career. In general boys were described by most witnesses as being more unconventional and irresponsible than girls at this stage.

(ii) *Differences between the ages of* 12 *and* 14.

(71) Many witnesses described girls as being quicker than boys before or during the early part of this period. In the latter part, owing to physiological changes, the girls tended to fall off; and boys once more slowly reached, if they did not overtake, the level previously attained by girls. From the age of 13 to that of 15 docility in girls decreased, physical strength increased, and nervous control failed to keep pace with the increase of strength; special aptitudes either became permanent or disappeared. In both sexes there was an increase of self-consciousness and sensitiveness; and girls frequently suffered from mental lethargy and consequent slovenliness in their work. On the whole, however, girls, in virtue of their greater conscientiousness, took their school work seriously; whereas many boys were inclined to become irresponsible, idle, and defiant. Several witnesses described this period as one of restless activity, in which the memory of both sexes was good and the appeal through the senses was strong. Others had observed that the memory of girls was retentive, their diligence greater, and their mind more mature; but on the whole they were more passive and imitative, while boys often had a genuine desire to reason things out. Several witnesses had observed that boys seemed to enjoy a mental struggle more than girls, who were often content to work more mechanically and to absorb more readily the instruction given by the teacher.[1]

Most witnesses thought that boys and girls, but more especially girls, required very special care at this stage and throughout the whole period of adolescence. A few witnesses, however, were in favour of actually driving the boy during the period of adolescence.

(iii) *Differences between the ages of* 14 *and* 16.

(72) It was generally agreed that at this period the tendency previously mentioned to mental lethargy and slovenliness in work was still observable in girls. This was doubtless largely due to physical causes, but might also be owing to the lack of a

(1) *cf.* Stanley Hall: *Adolescence*, II., p. 617 foll. (New York, 1904).

definite aim in life. Boys as a rule realised that they would have to earn their living; but many girls were still uncertain about their future career. Girls were described as being inclined to rely too much on memory and imitation; they did not display so much aptitude as boys for subjects that allowed of abstract treatment. Most witnesses had observed that at this stage boys developed the power of reasoning in a notable degree, whereas girls developed more readily the capacity for criticism and appreciation. From the age of 14 to 17 the interests of boys were more absorbed in the life of action and adventure, while those of girls were usually concerned in the emotional and picturesque aspects of life. During the period of adolescence girls as a rule had a great accession of sensibility and could be easily aroused to appreciation of beauty in poetry, pictures, music, and noble actions. As their feelings were easily moved, they became more altruistic, and they could, in consequence, readily be swept away by group-suggestion, or by hero-worship, and persuaded to overwork themselves for the credit of their form, their side, or their school, or in order to win the approbation of anyone they admired, such as, for example, a favourite teacher. Most witnesses were strongly of opinion that pressure on girls should be avoided during this period, and some held that any competition of boys and girls should be shunned during the whole of adolescence, since it might involve undue demands on the girl's physical and nervous force, thus possibly entailing serious results in later life. There was general agreement that the average boy possessed at this age a large amount of physical and mental energy which enabled him as a rule to surpass girls of the same age. After the age of 15 the girl's development became slower, while the boy developed more rapidly both in body and mind. At the age of 16 the average girl was about one year behind the average boy.

(iv) *Differences between the ages of* 16 *and* 18.

(73) There was general agreement that at this period boys shot ahead of girls, but that their physical strength was more variable; some witnesses, however, had observed that girls matured more quickly, and that their nervous control was greatly increased, and fully kept pace with their growth of strength. At this stage there was often a tendency for girls to overwork and over-strain themselves, both in school work and at games, and consequently "to lose perspective and to be unable to see the wood for the trees." One witness thought the salient differences between the sexes at this stage were not so much those of capacity, intelligence, and reasoning power, as divergences of interests and bent. Many witnesses had observed that the adequate expression of the girl's powers of imagination was frequently hampered by self-consciousness during the period from the age of 16 onwards. Several head masters of co-educational schools considered that some difference of treatment was especially necessary for boys and girls over 15 years of age.

D. Differences in the Achievements of Boys and Girls in those Subjects of the Curriculum which are Studied by both Sexes.

(74) We would point out that the evidence summarised below, regarding the relative capabilities and achievements of boys and girls in such subjects of the curriculum as are generally taught both in boys' and in girls' schools, is necessarily to a large extent based on comparisons which are neither exact, nor exhaustive, nor founded on a complete experience of both sexes; and the results cannot therefore be regarded as really scientific or final. The most satisfactory part of our evidence, from the point of view of a real comparison, was that submitted by the head masters of Co-educational Boarding Schools and Secondary Day Schools for boys and girls; but as schools of this type only represent a relatively small percentage of the total number of Secondary Schools, and as the pupils in the Boarding Schools are specially selected, we must accept the result of such comparisons with some reserve.

The evidence received from examining bodies is also of some importance for instituting such comparisons; but it should be pointed out that examination statistics, which show, for example, the number of boys and girls respectively who obtained distinction in certain examinations or in certain subjects, are probably of relatively little value as an indication of natural capacity, though they may throw some light on the effects of existing differences between the curricula in use. The most important considerations tending to invalidate such data as a basis for comparison are :—

(*a*) The difference in the time allocated to a subject in Schools for boys and girls respectively: for example, more time is as a rule devoted to English, History, and French in Girls' Schools, and less time to Latin, Mathematics, and Natural Science.

(*b*) The difference in the skill of teachers of any given subject: for instance, there is probably a better tradition of English teaching in girls' schools, while there is, on the other hand, a relative lack of women teachers with high academic qualifications for teaching Latin, Mathematics, and Physics.

(*c*) The influence of existing differences in the curriculum: for example, the work done by boys in Physics, a subject seldom offered by girls, must exert a considerable influence on their progress in Mathematics by providing direct practical applications of mathematical processes and thus adding interest to the study of Mathematics.

General Differences in the Achievements of Boys and Girls in the Subjects of the Existing Curriculum.

(75) There was almost general agreement among witnesses that girls as a rule showed equal or superior originality and capacity in English Literature, History, Modern Languages, and possibly the Biological Sciences, but were definitely inferior to boys in Ancient Languages, especially Latin, in Mathematics, and in those branches of Natural Science which specially require a knowledge of Mathematics.[1] An examination of the results recently attained in the Cambridge Local Examinations also led to the same conclusion. The marks gained by boys were higher in Mathematics (including Arithmetic), Chemistry, Physics, and Latin, and to a slight extent also in Physical Geography. On the other hand, girls showed a very noticeable superiority in English Literature and a distinct superiority in English Composition, English History, Botany, Geography, and French, including oral French. Girls also did better in model drawing and design. In general the evidence furnished by examining bodies gave the impression that the only subjects in which the girls' work was on the whole equal or superior to that done by boys were English subjects and Modern Languages. Girls showed, as a rule, a greater power of expression in the English language, but boys were more original.

We must, however, repeat that these differences in the achievements of the two sexes in certain subjects, so far as they have been observed by teachers and examiners, should be accepted with considerable reserve, and should not necessarily be interpreted as pointing to the existence of deep-seated innate divergences in the educable capacity of boys and girls respectively. In fact many of our witnesses thought that there was little real difference in the general educability of boys and girls except possibly in Mathematics and the exact Sciences.

Differences in achievement in specific subjects of the curriculum observed by teachers and examiners and the probable causes of such differences.

(76) The various differences in achievement in the subjects of the school curriculum as noted below have been brought to the Committee's notice by examining bodies, by school inspectors, and by teachers. In each subject some of the differences are attributable, in a greater or less degree, to conditions attaching

(1) This agrees on the whole with the observations of several foreign authorities on education. Dr. F. Drtina, for example, in a memorandum sent to the Committee writes: "It is generally known that girls dislike mathematics and science, while on the other hand they have better talent for and knowledge of languages and composition." *cf.* Burstall: *English High Schools for Girls* (1907), p. 13. "It appears that boys do better, *caeteris paribus*, in mathematics, chemistry and physics; girls in literature, history and biology."

to sex: others to fluctuating conditions acting separately or together, such as the relative importance assigned to the subjects in the time table, or the teaching power available or actually applied.

These opinions have, of course, little scientific basis and, even when statistical, make no claim to comprehensiveness. It is all the more interesting, however, to note that, as far as they go, they are entirely consonant with the results obtained recently in England by an entirely different method employed on a larger scale, namely, by graduated tests framed by psychologists according to age standards and applied under uniform conditions in representative Elementary Schools to all children below the age of 14.[1] The conclusions thus arrived at may be stated as follows:—Boys tend to excel in arithmetic, especially where problem work is concerned, in drawing, and in most of the other manual subjects that are commonly taught to both sexes; girls tend to excel in linguistic subjects, that is to say, in reading, spelling and composition, and in speed and quality of handwriting.

For convenience, the salient facts and opinions expressed by our witnesses may be thus summarised:—

Classics.—The lower standard of girls' attainment is largely due to tradition, under which less time is assigned to the subject in girls' schools and fewer teachers are specially qualified.

No modification based on differentiation is desirable.

Modern Languages.—The higher general average of girls' attainment, especially in oral work, including readiness, fluency and correct articulation, is due partly to tradition, which requires women teachers to be specially qualified, and partly to the better trained ear and greater mimetic ability which girls possess.

No differentiation as to treatment seems desirable or possible.

English Language and Literature.—The general conclusion expressed by our witnesses and on the whole corroborated by the evidence furnished by examining bodies was that in this subject the average achievements of girls were distinctly superior to that of boys. This result is largely due to the more assured position given to the subject in girls' schools, and to the larger proportion of really well-qualified women teachers and the better teaching which is consequently given.

Girls attempt more general reading, have more retentive memories, and in general, and noticeably between 14 and 16, write with more facility than boys but tend to greater diffuseness. Here, as in other subjects, boys show up the best work and the worst: at the best, they think for themselves, show more force and directness and express opinions of their own; on the other hand, their work as a whole is inferior both in neatness and

(1) *See* Burt: *Distribution of Educational Abilities*, p. 65, and *Mental and Scholastic Tests*, Tables XXXIX to LXII.

arrangement. Girls are more conscientious and better read, are neat and methodical, but are more ready to accept without question the teacher's point of view and, therefore, tend to reproduce rather than to reason.

Some difference in treatment of the subject seems desirable. The attention of boys between 14 and 16 should be more directed to composition than at present, and that of girls should specially be drawn to the intellectual content of the text studied without neglect of its æsthetic aspects.

History.—The balance of teachers' opinion inclined to the view that in History girls were superior to boys, but examining bodies reported little difference in achievement. Girls' work was in general more full of material but unenterprising, tending to follow text books and teachers' notes. Boys showed signs of originality and expressed their own views; their work had more ideas, freshness and variety.

Though boys and girls seem to approach History from a different angle, no differentiation in the treatment of the subject seems either practicable or desirable.

Geography.—The evidence given by teachers and corroborated by most of the examining bodies was that boys on the whole were better at Geography than girls; though girls were more painstaking, boys were more original and better at applying their knowledge. Any difference, however, in their relative achievement probably results from the fact that in boys' schools more attention is paid to Physical Science and therefore to the corresponding aspect of Geography. Here also girls are too dependent on their teachers and more ready than boys to accept facts and theories on authority.

As in History, no differentiation on account of sex appears practicable or desirable.

Mathematics.—A considerable weight of opinion among examining bodies affirmed the relative inferiority of girls to boys in work done in this subject. As corroborating this, it may be noted that of the 230 Advanced Courses in Mathematics and Science recognised by the Board of Education in 1921–22 only 41, or less than one-quarter, were in girls' schools.

Boys appear to show more original and reasoning power; girls more aptitude for book work than for problems. One examining body expressed the opinion, which was supported by several witnesses, that the aptitude of girls for Mathematics often seemed to be exhausted at an earlier stage than that of boys.

The present degree of girls' inferiority in this subject should not, however, be regarded as permanent, being due partly to unskilful teaching of an old-fashioned kind and partly to an impression among parents, which has influenced the time-table, that Mathematics is unsuitable for girls. Again the teaching has often been handicapped by the defective knowledge of

Arithmetic with which girls enter the Secondary School. This particular disadvantage is often traceable to preliminary conditions of teaching, under which either the subject has been badly taught, or (as in some Elementary Schools) girls have spent on Needlework and Arithmetic the time which boys have devoted to Arithmetic alone. Further, the appeal of the subject is stronger to the boy: within the school Physics and Mechanics make an immediate call on his mathematical knowledge, and at the close of his career certain avocations, in which knowledge of Mathematics is essential to success, afford him an opening restricted as yet to his sex. These differences—aptitude, teaching and interest—are cumulative. As far as girls are concerned, though they may be partly due to girls' greater susceptibility to mental fatigue, it is doubtful whether this amounts to a difference in educable capacity of the sexes. But some differentiation in this subject seems called for. It should take the form of allowing girls to drop the subject at an earlier stage; and perhaps, also, of teaching them the subject with greater reference to practical applications.

Science.—The standard of girls' attainment in the subjects comprised under this heading is lower than that of boys.

The main reasons for this are that Physics, Mechanics and even Chemistry, are less seriously taken up in most girls' schools; the teaching is usually not so good; and there is at present a noticeable shortage of properly qualified women teachers of these subjects. A special reason is the comparative lack in girls of an attitude of scepticism and curiosity which gives the best approach to Natural Science. Girls have, however, an aptitude for the Biological Sciences, in which they are helped by their greater diligence and neatness; they excel in subjects which require descriptive powers and a capacity for comprehending elaborate classification. One witness regarded them as "microscopic rather than telescopic in their scientific outlook." Boys excel in experimental work, in initiative, in the capacity of judging phenomena, and in reasoning.[1]

As indicating the fluctuating character of the differences noted, the number of Advanced Courses in Mathematics and Science recognised by the Board for 1921–22 in the grant-earning schools which contain girls is significant. In girls' schools 450 schools provided 40 Courses, or 9 per cent; but in some of these, as sanctioned by Circular 1112, Biology replaced Mathematics. In Co-educational Schools, 331 schools provided 42 Courses, or about $12\frac{1}{2}$ per cent.; further, of the 603 pupils taking these Courses 32 per cent. were girls.

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(1) It may be noted that the Advanced Courses in Science recognised by the Board of Education in girls' schools are more often in the biological than in other branches of Natural Science, and also that Geology is hardly ever taught in Secondary Schools.

Music.

(77) It is difficult to institute a satisfactory comparison between the sexes in musical execution and appreciation, as on the whole much more attention is devoted to this subject in girls' schools. Many witnesses, speaking in general terms, were of opinion that girls were better at Music, and showed more appreciation than boys, but others thought that on the whole the response of the two sexes was equal. The most instructive evidence on the subject was received from the head masters of co-educational schools. The head master of one large co-educational boarding school told us that there was no noticeable difference in the way in which boys and girls up to 12 years of age appreciated Music, but that boys more frequently liked brilliance and power of expression, while girls might often appreciate sheer beauty. Their capacities for aural and original work did not differ noticeably, though a desire for independent creative work was more often shown by boys. Girls up to 12 generally made very rapid progress in instrumental music and showed more technical ability. From the age of 12 onwards boys with a good ear were generally keenly interested in Music whether they learnt an instrument or not. Boys perhaps showed a stronger impulse to independent creative work. In instrumental music, girls over the age of 12 showed greater dexterity and a keener desire for well-finished work. The growth of the hand in boys between the ages of 14 and 16, and consequent difficulties of control and lack of delicacy of touch, were adverse to excellence in instrumental music. Boys showed less desire than girls to perform on an instrument themselves. During the period of break of the voice girls were capable of singing, though their voices were poorer in quality and should not be strained. Boys, on the other hand, should stop singing during this period. He had repeatedly noticed that appreciation and executive power in Music did not always go together. Great capacity for appreciation could exist without any desire to play at all. Cases of exceptional musical talent were most frequently found among boys.

Several teachers in co-educational schools thought that girls were superior to boys. In combined class-teaching of singing, girls appeared to show a keener interest and more marked taste, probably because their musical training in many cases was not limited to school work. The lessons in instrumental music which girls frequently had out of school hours undoubtedly developed their ear for rhythm and their musical knowledge, and in the same way a sense of rhythm and time was unconsciously acquired with dancing. Nevertheless, for natural musical ability boys, as a rule, were in no way behind girls, and, if they could be inspired with the right spirit of interest, they thoroughly enjoyed their songs and ear-training. It was repeatedly pointed out to us that the breaking of the boys' voices made a great

difference, and that many boys who, in the lower and middle forms, had been interested in the subject seemed to find it lacking in interest for a time after the breaking of their voices. Much, however, depended on the musical atmosphere of the home and the school. On the whole there was a much stronger tradition for aesthetic studies in girls' schools, and it was probably due to this that girls seemed generally more interested in musical appreciation. In boys' schools, music was frequently pushed aside to make room for lessons in those subjects which counted in examinations.

Several witnesses had noticed that girls in general seemed to have more appreciation of rhythm than boys, and they pointed out that this characteristic was also observed in their ready response to rhythm in dancing and eurhythmics.

The chief reasons for the differences in the response of the sexes to instruction in Music may be stated as follows :—

(*a*) It must be remembered that many pupils in girls' schools learn to play the piano or violin and thus have a great advantage over most boys who, owing to their greater interest in other and more congenial subjects, have as a rule no time for the study of instrumental music. We have shown in Chapter I. that, owing to the partial survival of the old tradition of "accomplishments" for girls, Music occupies a more assured position in girls' schools than in most boys' schools. It would seem, too, that most head mistresses have a strong belief in the educational value of the æsthetic subjects.

(*b*) There is evidence to show that, where there is really a vital response to instruction in Music, boys seem not only to have a greater desire for self-expression through some form of composition, but to have more originality in carrying it out. We were told, for example, that in the great Public Schools the really musical boy was, in depth of understanding, several years ahead of the girl of like age in a similar school.

(*c*) We have already referred to the difficulty experienced by boys in vocal music in consequence of the breaking of their voices. Their inability to sing at this period sometimes leads to a loss of interest in music generally, and would thus seem to place them at a natural disadvantage as compared with girls. This difficulty should, however, be easily surmounted in a well organised school where there was a musical atmosphere.

Drawing—(Art).

(78) We have some evidence tending to show that, in the early stages of secondary school life, boys are slightly better than girls in this subject, though some witnesses thought that up to

the age of 12 boys and girls appeared to be equally equipped so far as their imaginative outlook on the world was concerned.[1]

In Art, as far as secondary education is concerned, the salient difference in the educable capacity of boys and girls appears to be that during the three or four years from about 13 onwards, girls and boys of like age are going through phases of artistic adolescence which are fundamentally different.

Boys are said to be usually far more objective than girls in their exploration and observation; in other words, they are more interested in discovering the exact nature of things. For example, a boy of 15 can often make unexpectedly mature studies of insects, birds, ships, machines, and the like. His drawing is good in so far as it is an exploration of his world. He explores in certain directions only, according to his individuality; but where he does explore, it is with great sympathy and imagination. His self-expression is the attempt to attain understanding of things foreign to himself.

He is as a rule about half-way through this stage when he leaves the secondary school at the age of 18.

Girls do not naturally go through so marked a period of looking closely into the nature of things outside themselves; and such study as they do undertake in this direction is usually the result of the teaching they receive. Left to themselves, they soon find that what they already see and know of the world has a personal interest and an influence over them which they attempt to express. The sense of decoration develops early, usually by 15 or 16. In a specially favourable environment, and under a good teacher, a girl of 17 or 18 may draw, model, or paint with the directness of a man many years older and with greater freshness and charm, but her work, highly expressive as it is, is usually based on less sympathetic observation than that of a boy, and is of slighter interest.

Such rapid development is not, however, as a rule possible in the environment of a secondary school.

During this earlier period a girl is not usually original; originality in the Arts is a quality of maturity rather than of youth. She is, however, often resourceful; she can be keenly appreciative of fine work, and is often perceptibly influenced by it. She can adopt her teacher's methods of work, and can often use them with greater ease though with less judgment than boys. Her artistic mode of thought is at this stage usually comparatively self-centred, and moves in the opposite direction to that of a boy of the same age. His studies of things external to himself would seem to her to be tedious.

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(1) *cf.* Burt: *Mental and Scholastic Tests*, p. 326. "Tests of drawing ability, applied under standardised conditions, show that at any rate up to the age of 13 boys definitely surpass girls. After that age the differences become a matter of quality rather than of mere degree. Girls show a keener eye for colour; boys for form. Girls are more decorative, more conventional, and excel in delineating detail; boys give a better general impresssion of the whole."

Several teachers in co-educational schools had observed that girls were better copyists and more interested in colour. Boys often possessed more initiative in design, and showed greater power. The head master of one large co-educational day school had noticed that in memory drawing boys showed greater aptitude for seizing the more important points and for judging the relative importance of the objects they were drawing. Girls found considerable difficulty in drawing objects in perspective.

The evidence furnished by the examining bodies threw considerable light on the relative achievements of the sexes in this subject. The University of London Extension Board had found that examination results at co-educational schools showed that boys more often reached the "credit" standard than girls. This difference was to some extent counter-balanced by the slightly larger proportion of the total number of girl candidates who offered the subject for examination, and the probability that the boys were to that extent more of a picked set. The examiner in Drawing for the Oxford and Cambridge Joint Board had observed that the difference between the work of the sexes was slight, and depended largely on the more painstaking character of the work of the girls. The boys' work showed plenty of observation, though little imagination and originality. The girls' work showed more imagination, though little originality. Composition of figures and figure drawing was apparently seldom taught systematically in boys' schools, and their drawings from memory were in consequence seldom good. Good work, where it appeared, seemed the outcome of the boys' personal taste, and was occasionally humorous, which was seldom a characteristic of girls' work. Objects showing mechanical construction were drawn by boys with much more understanding than by girls. In Design, girls showed a better sense of colour and harmony. The strong point shown by the answers in the examination in Drawing was the willingness of boys and girls to draw, paint, or design, but there had been too much direction in the preparation for the examinations.

The apparent differences between the sexes in artistic achievement may be partly explained by the fact that Drawing and Art Subjects generally have a more established position in girls' schools owing to the persistence of the old tradition of "accomplishments" for girls, and more time is devoted to them than in boys' schools. This may partly explain the relative superiority of girls in Art subjects—at all events at certain stages.

Games and Physical Training.

Games.

(79) It is difficult to institute any exact comparison between the performances of boys and girls respectively in games and physical exercises, as, even in co-educational schools, the sexes

are as a rule completely separated for these purposes after the age of about 12.

In regard to Games, several witnesses were of opinion that girls retained much of their natural individualism, and that, in order to foster the corporate spirit, team work in games was as necessary for them as it was for boys, though its development required more direction than was necessary in boys' schools. It may indeed be true that girls require more supervision in their games than boys, but in the light of our evidence we are disposed to think that in some girls' schools there has been a distinct tendency to over-organise the games and sports. This often entails a loss of spontaneity and freedom, and probably impairs to a considerable extent the recreative value of such pastimes, which may thus impose as severe a mental strain on highly strung and over-conscientious girls as ordinary lessons. This over-organisation, where it exists, seems to be due to the over-conscientiousness of mistresses and girls alike; and we are of opinion that the authorities of girls' schools would be well advised to arrange their games more on the lines of boys' schools, where the organisation of the sports is left very largely to the boys themselves.

Physical Training.

(80) As regards Physical Training the head master of a co-educational boarding school told us that, in general, boys had less control than girls and that their movements were jerky. They had more capacity for muscular efforts and excelled in all heavy work, being much stronger in the arms and lighter in the body. Girls, on the other hand, were neater and more controlled in their movements and capable of longer sustained effort. As a rule they were better in free standing exercises, while boys had the advantage in apparatus work. A woman witness, who had had much experience in teaching Gymnastics, was of opinion that boys and girls might be taken together in Physical Exercises up to the age of 10 or 11, though even then there was a marked difference in the amount of work that could be demanded. Girls under 10 were generally more accurate in Physical Exercises than boys, but between 10 and 12 the boy was capable of greater exertion and more strenuous work; this was probably due to the fact that his energy had not been dissipated by the multiplicity of home duties, both before and after school, that fell on many girls in day schools.

In several co-educational schools where dancing was taught it had been observed that girls had far more power of self-expression and less self-consciousness. Between the ages of 15 and 16 boys were very awkward and ungainly in their movements and were only capable of quite easy steps. Girls at that stage of rapid growth overcame their difficulties very easily and at an earlier age than boys, usually at about the age of 12 to 14. Several witnesses who had had experience both of boys' and girls'

schools were of opinion that in general girls were better than boys at Gymnastics, Dancing, and Eurhythmics.

In Physical Training, as in some other branches of school work, the mistresses in girls' schools have, until recently, received a more systematic training in method than most men teachers.[1] There are now a considerable number of Physical Training Colleges in which women who desire to specialise in Physical Training and Games receive the requisite preparation. It is probable therefore that on the whole the Physical Training given in most schools for girls has been hitherto more thorough and more systematic than that given in many boys' schools. We understand, however, that several institutions have now been established for training men teachers of Physical Exercises, so that it is likely that the methods of instruction in this branch followed in boys' schools will steadily improve. In general our evidence seems to indicate that the existing differentiation in Games and Physical Training for boys and girls respectively is based on sound reasons, and that it should probably be carried rather further in games and sports.

Voluntary societies and activities out of school.

(81) It would seem that voluntary societies are now almost as much developed in girls' schools as in boys' schools. Doubtless, however, there is a certain subtle difference in the attitude of boys and girls respectively towards these societies: and we had some evidence indicating that girls sometimes took them more seriously than boys. It is only, however, in a co-educational school that it is possible to institute an exact comparison. From the evidence which we have received it would seem on the whole that in co-educational schools, especially in boarding schools, girls are more interested in literary and musical societies and boys in natural history and photographic societies. In the same way chess clubs, which are common in boys' schools, are rarely found in schools for girls. We were told that in nature study, for example, the collection of specimens appealed more to boys, while girls were attracted to the study on aesthetic grounds. We are inclined to think that in some girls' schools there is a tendency to over-organise the activities which take place out of school. To this danger girls are perhaps specially liable, not from any timidity on the part of those conducting them, but because, as we have shown in Chapter I., what has been a natural and slow growth in boys' schools has been introduced into girls' schools fully developed. If the organisation of these school societies and clubs could be left largely to the pupils themselves, they would gain an opportunity of making the mistakes that are so important an element in learning. Not the least valuable contribution that school societies make to the life of the school is that they give an opportunity for self-development and for

(1) *See* Chapter I., p. 34, § 23.

winning self-respect, and the respect of their fellows, to some pupils who, for one reason or another, fail to succeed in the more formal branches of school life or in games.[1] It would seem to be specially important to afford such opportunities to girls, who are perhaps more apt to be depressed by lack of success in the ordinary school studies than boys. We were told that at one co-educational boarding school the school societies, with the exception of the mechanical engineering society which included only very few girls, were fairly evenly divided between the sexes, but that it generally happened that the boys took, in practice, a larger share of the management than the girls. The boys also spoke more at the School Debating Society than the girls. As regards the relative attainments of the sexes in craft-work done out of school, we were told that in several co-educational schools girls showed originality in artistic work such as embroidery and ceramic painting, but not in woodwork and mechanics. Boys seemed to be more interested in events outside school life than girls, who, as a rule, tended to have a more restricted range of interest. Many witnesses pointed out that, owing to the present congestion of the curriculum and to the domestic work which they are frequently expected to do at home, many girls in day schools had no time for leisure occupations. It would seem that even in co-educational boarding schools the girls' time is, as a rule, more occupied than that of the boys', and that girls devote more time to reading.

Manual work, domestic subjects, and gardening.

(82) At present, one of the most important differences between the curriculum for girls and that for boys is that girls generally take domestic subjects, while boys take some form of manual work. It is not, therefore, possible to institute a comparison in these subjects, except in a few co-educational schools, where, as an experiment, domestic subjects have been taught to boys and manual work has in some instances been taken by girls. We were told, for example, that at one co-educational boarding school there was little difference between the achievements of boys and girls in such subjects as Needlework, Woodwork, and Gardening, provided that there was a liking for the work. Some girls seemed to be fond of gardening, but the best gardens had been cultivated by boys. In Needlework, a boy's control of his hands was at least equal to that of a girl, and he was often more particular and exact. In the lower forms, boys were even better than girls in Needlework and Knitting. In the higher forms a few of the boys did embroidery.

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(1) The Boy Scout and Girl Guide organisations form a valuable element in out of school activities. The two organisations seem to provide the degree of differentiation required for the sexes.

PART II.—THE GENERAL DIFFERENCES BETWEEN BOYS AND GIRLS IN RESPECT OF SOCIAL ENVIRONMENT AND SOCIAL FUNCTION.

A. The Influence of General Tradition and Environment on Teachers and Pupils in Boys' and Girls' Schools.

(1) *Traditional differences in the relative attention devoted to different subjects, and in the arrangement of the time-table.*

(83) There seems to be no doubt that the tradition and environment of girls' schools, especially the High Schools and Endowed Schools, are very different from those of boys' schools of the corresponding types. It is indeed true, as we have shown in Chapter I., that the girls' curriculum has been closely modelled on that of the boys, but the various subjects are presented to the pupils in a rather different way by women teachers, who unlike the majority of masters in boys' schools have often received some systematic training in the art of teaching. The lack, in the early days of the women's movement, of highly qualified mistresses in such subjects as Mathematics and Ancient Languages largely serves to explain the position now occupied by these studies in many of the older girls' schools, where the pupils seldom reach the same standard as boys in Classics and Mathematics. On the other hand, the more prominent position assigned to Mathematics and the various branches of Science in County and Municipal Schools for Girls is partly due to the fact that schools of this type have to some extent inherited the tradition of Higher Grade Elementary Schools and Organised Science Schools. Again, special attention was from the first devoted to English subjects and Modern Languages in girls' schools, and the effects are apparent at the present time in the achievements of girls in these subjects, in which they are able to compete successfully with boys in the various external examinations. In the same way the greater attention devoted in girls' schools to the aesthetic subjects is due to the fact that the old tradition of accomplishments for girls was partly retained by the pioneers of the new movement for women's education in the sixties. This consideration also explains the fact that many girls who have relatively little natural aptitude for music are still expected to devote an hour a day to practising on the piano or the violin. The older schools for girls, with some exceptions, were much less well endowed than boys' schools of the corresponding type. They were often unable in consequence to provide adequate laboratories, and this to some extent explains their relative neglect of branches of Natural Science (such as Chemistry) which require expensive equipment. Lastly the prominent position assigned to Needlework in most Girls' Schools is also an inheritance from the older tradition of girls' education.

Another important traditional difference between boys' and girls' schools is the shorter amount of time spent by girls in school. In most of the older schools for girls there was either no afternoon session at all, or only easier subjects such as Gymnastics, Music, and Dancing were taken in the afternoon. In the newer County and Municipal Secondary Schools for Girls the tendency is to assimilate the girls' time-table to that of the boys, but even in these schools the morning session is sometimes shorter than in boys' schools, and Saturday is usually a whole holiday. In the second place, the period of a lesson has until recently been shorter in girls' schools than in boys', and there has in consequence been more lecturing and teaching, and less independent work done by the girls in school under the supervision of the mistresses. Thus the tendency on the part of some mistresses to help their pupils too much, to which many witnesses drew attention, seems to be partly the result of long standing tradition. The shorter time spent by girls in school is largely due to the tradition that daughters should be free to take part in the social life of the home. It may also have been partly influenced by the fact that in the early days of girls' education it was thought desirable for the pupils to be accompanied to and from school.

(2) *The influence, direct and indirect, of social environment on boys and girls at school.*

(84) Many witnesses thought that, apart from changes incident on the onset of adolescence, the difference in the average achievements of boys and girls in certain subjects was chiefly due to varying interests and sympathies influenced by environment. It was uncertain how far such divergence was biological in origin, and how far it depended on the fact that boys and girls were, as a rule, from their earliest years subjected to different traditions. On the whole, these traditions probably accentuated a real, though not necessarily great, biological difference.

Several witnesses were of opinion that the quality of leadership, which boys usually possessed in a greater degree than girls, was largely owing to custom, and that any observable differences in educable capacity between the sexes were due more to tradition aud environment than to other causes. Such differences were profoundly affected by the methods adopted in teaching and training both in the home and in the school.

Other witnesses were inclined to think that certain mental characteristics often remarked in girls, such as docility, imitativeness, absence of constructive and critical power, lack of initiative and independence, were the outcome of the traditional conception of womanliness as consisting in modesty, gentleness, and willingness to follow rather than to lead. A boy was expected to have initiative, but hitherto it had not been expected of a girl, and this had been not merely a school tradition but a life tradition.

This difference in the attitude of the sexes may be partly due to the fact that the idea of a definite vocation is more clearly and consciously present to the mind of the average boy than to that of the ordinary girl. Recent educational statistics[1] seem to indicate that the majority of boys, especially in County and Municipal Secondary Schools, leave school rather earlier than girls in order to enter some definite trade, profession, or avocation. This statement more especially applies to certain industrial districts, in which boys are often withdrawn from school by their parents at a relatively early age in order to take advantage of favourable openings in local trades and industrial concerns.[2] The fact that the boy is, as a rule, definitely conscious that he is expected to prepare, and in fact must prepare, for a definite avocation often gives a zest and stimulus to his school work which his sister may lack. It must be remembered that, to the majority of girls, the possibility of an early marriage is probably always present, consciously or sub-consciously, and that this consideration may, in many instances, tend to make them less ambitious and less interested in such school subjects as are not obviously of some use in ordinary life.

Several women witnesses drew attention to the influence of domestic conditions on pupils in Secondary Day Schools, with special reference to the relatively heavy household duties devolving on many school girls. In view of altered social conditions and the difficulty in obtaining servants, a relatively high percentage of girl pupils, especially in Municipal Secondary Schools, did fairly heavy housework over the week-end; and a smaller, but still

(1) Number of full-time pupils who left Secondary Schools on the grant list in England and Wales during the School Year, 1920-21.

Age of Pupil at date of Leaving.	Under 12.	12 and under 13.	13 and under 14.	14 and under 15.	15 and under 16.	16 and under 17.	17 and under 18.	18 and over	Total.
Boys - -	3,867	1,495	2,421	5,953	8,741	8,259	3,913	2,218	36,867
Girls - -	3,078	1,386	2,315	5,191	6,086	5,654	5,465	3,848	33,023
Total -	6,945	2,881	4,736	11,144	14,827	13,913	9,378	6,066	69,890

(2) Ages of pupils in the schools on 1st October 1921.

Ages on 31st July 1920.	Under 12.	12 and under 13.	13 and under 14.	14 and under 15.	15 and under 16.	16 and under 17.	17 and under 18.	18 and over	Total.
Boys - -	47,055	33,231	36,915	32,135	21,620	9,567	3,244	607	184,374
Girls - -	46,536	29,458	32,541	28,119	20,728	12,756	5,067	1,036	176,241
Total -	93,591	62,689	69,456	60,254	42,348	22,323	8,311	1,643	360,615

considerable, proportion helped in preparing the daily meals, waiting on lodgers, or looking after younger brothers and sisters. Boys in these schools sometimes cleaned boots or ran errands in case of need, but their duties were less arduous and sedentary than those of girls, and it was noticeable that the least assistance in household duties was expected of boys in homes of the poorest type. In general, the home always weighed more heavily on girls than on boys, and, in cases of family illness, additional strain and anxiety fell on them. Moreover, as girls were more liable to nervous strain than boys, they were more handicapped by the absence of quiet and other necessary facilities for private study in poorer homes.[1] The household duties performed by girls must often tend to have the effect of making them more physically tired, and therefore less mentally receptive than boys.

B. The Influence of Social Ideas and Financial Considerations upon the attitude of Parents in regard to the Education of Boys and Girls respectively.

(85) There is much evidence to show that the old idea that the highest aim for a girl was to be a married woman of leisure and means still survives in many middle-class families. This view, whether consciously or sub-consciously present in the minds of parents, explains the fact that many of them are still disinclined to spend so much on the education of their girls as on that of their boys. This condition of things is, of course, being rapidly modified owing to changed views of the capabilities and functions of women and to the provision of scholarships for girls by Local Education Authorities. On the other hand, it must be pointed out that at the Women's Colleges and Hostels at Oxford, Cambridge, London, and the other Universities, and at Institutions such as the London School of Medicine for Women, there is still a relative lack of entrance scholarships which is in striking contrast to the numerous scholarships available for boys, especially at the Colleges of Oxford and Cambridge and at Medical Schools attached to the great hospitals. There is thus very severe competition among girls for the few available scholarships of this type.

Again many parents, though they are not prepared to spend so much on their daughters' education, are nevertheless unwilling to let them go like their brothers to a Public Elementary School, and prefer to keep them at home under the care of a governess or to send them to a private school till they are old enough to enter a High School. Many parents also, especially in industrial areas, show a disposition to keep their daughters at school longer than their boys, who are frequently withdrawn at the age of 16 or 17 to take advantage of openings in local businesses. Many, again, think that the girls should help their mothers in household duties and take a large share in the social life of the home.

(1) *cf.* Annual Report of the London County Council for 1910, Vol. III., p. 146 (Homework and Nerve Strain).

Thus girls are often encouraged by their parents to concentrate on Music, Art, and Literature, which are still regarded in many quarters as subjects specially suitable for girls.

In some families, too, girls are expected to take a part in the social life of the home and to sing, play, and recite at afternoon parties.

Several women witnesses pointed out that, in the towns, boys and girls, but more especially girls, were often expected to share in the evening life of their relatives and friends who were engaged in offices by day and had free time in the evenings. Their parents frequently took them, or encouraged them to go, to picture palaces, dancing classes, theatres, concerts, and parish entertainments, which tended to distract and over-excite them and were often deleterious to their health on account of the late hours spent in vitiated air. Girls were more affected by such distractions than boys, as they were more liable to nervous strain. It would appear from the available evidence that parents are partly to blame in this matter, as they often take their girls and boys as companions to picture palaces and other places of amusement, or do not exert sufficient parental authority to curtail too frequent dissipation.

C. The Influence of Ideas regarding the Social Functions of Boys and Girls on Educational Theories and on Methods of Education adopted by Teachers.

(86) On the whole, it would seem that the idea of future vocation has been more clearly present to the minds both of teachers and pupils in boys' schools than in schools for girls. Most parents impress on their sons that they will have to earn their own living and that it will be necessary for them to choose a profession or vocation. It is doubtless partly due to this consideration that the teaching of many subjects in boys' schools is, on the whole, more practical and less "academic" than in girls' schools, though several witnesses were of opinion that even boys' schools were still too much affected by the academic tradition derived from the older endowed schools, and that there was a noticeable tendency in many quarters to disregard the fact that the majority of the pupils would at a comparatively early age enter commerce or industry, or one of the professions, without proceeding to the University. The influence of current ideas in regard to the necessity of preparing boys for some definite occupation largely accounts for the relative neglect of the aesthetic subjects in most schools for boys, which is justified on the ground that boys, owing to the pressure of work and of external examinations, have no time for the study of "ornamental" subjects. The persistent tradition that the more difficult school subjects, such as Classics, Mathematics, Physics, Mechanics, and Chemistry, are studies peculiarly fitted for boys is another aspect of the "practical" view of boys' education. On the other hand, the greater attention that has always been paid to Literature and the Arts in girls' schools rests largely on the commonly accepted assumption that the

natural function of girls is to marry, have a home, and cultivate, if possible, the arts and graces of life. The claims of the home also account for the prominent position assigned to needlework and domestic subjects in girls' schools. Many witnesses, however, pointed out that Girls' Schools, too, were still unduly influenced by the academic tradition. This is due to the fact that, when the first girls' schools of the modern type were founded in the middle of the last century, the principal, and indeed, almost the only career open to girls was the teaching profession in its various branches. Indeed, as we have shown in Chapter I., the movement for the higher education of women partly sprang from an effort to improve the education of governesses. In order to qualify for the different branches of the teaching profession it was, and is, necessary to possess certain certificates and academic qualifications, and, as we have shown in Chapter I., Miss Buss, and other pioneers of the women's movement, attached very great importance to external examinations. These considerations largely account for the fact that there has been until recently a noticeable tendency in many girls' schools to arrange the work, especially in the upper part of the school, to suit those pupils who have to sit for the various academic and professional examinations.[1] A like tendency may be traced, in a less degree, in some of the new County and Municipal Secondary Schools, where a considerable proportion of the senior pupils aim at qualifying as teachers in Elementary Schools.[2] This condition of affairs is now to some extent being modified by the fact that many other avocations are open to women, such as the legal and medical professions, secretarial posts, and clerical work in the offices of the central government and of local authorities and in industrial and commercial concerns. Nevertheless, there is probably some truth in the statement, which was made by many of our witnesses, that the authorities in girls' schools are still inclined to pay too much regard to the requirements of those girls who are going to the University, or are preparing for professional examinations, rather than to the requirements of those who will be living at home after leaving school.

Another feature of girls' schools which is largely based on social convention is the fact that girls are not yet given, and perhaps cannot be given, the same freedom as boys to go where they will unaccompanied. Parents and teachers consider that they require more watchful care than boys, and this probably partly explains the noticeable tendency of many mistresses to supervise the girls' studies and games to a much greater extent than is customary in boys' schools.

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(1) Several head mistresses told us that this tendency had been intensified by the Board's requirement that whole forms should be presented for external examinations (Article 35 (*a*) and (*c*) of the Regulations for Secondary Schools, (1922)).

(2) It is worth pointing out that there are at present many more girl bursars than boy bursars in Secondary Schools in England and Wales. The figures for 1920–21 were 3,851 girls and 791 boys.

CHAPTER IV.

GENERAL REVIEW OF THE EVIDENCE AND CONCLUSIONS.

(87) In the course of our inquiry several crucial questions bearing on the Reference have emerged. These questions are as follows :—

(1) Is there sufficient evidence to suggest the desirability of any differentiation in the curriculum on anatomical and physiological grounds ?

(2) Does the relative susceptibility of girls and of boys to physical and mental fatigue bear on the problem of differentiation of the curriculum ?

(3) Does the available psychological evidence point to the advisability of differentiation ?

(4) Are there any subjects in the existing curriculum for which boys and girls respectively show special aptitude or distaste, and in case there are deep-seated differences in the attitude of the sexes to certain subjects, should Secondary education aim at developing strong points or should it be partly devised to improve weak points ?

(5) How far is it advisable to differentiate in the teaching of particular subjects of the curriculum to boys and girls respectively, for example, English, Mathematics, and Physics ?

(6) Is any differentiation of the curriculum desirable in view of differences in the environment and social function of boys and girls ?

(7) How far should girls' education be influenced by home duties during school life and afterwards ?

(8) How far may further differentiation between the curriculum for boys and that for girls be advisable in view of differences in the careers which they will probably follow as men and women ?

(9) How far are existing differences in the education of boys and girls dependent on tradition ?

(10) How far is it advisable to relieve the congestion of studies, more especially in girls' schools, and to provide a wider range of choice for the pupils ?

(11) How far is it desirable to provide more free time and greater facilities for the pursuit of leisure occupations ?

(1) *Is there sufficient evidence to suggest the desirability of any differentiation in the curriculum on anatomical and physiological grounds ?*

(88) The available evidence regarding anatomical and physiological differentiation between the sexes, as set out in Dr. Adami's memorandum in Appendix V. to this report, seems to indicate that there is a decided difference between boys and girls in rate

and periodicity of growth and development. Girls are often more robust than boys before the age of 11 or 12, but after the onset of adolescence, which occurs as a rule shortly after the beginning of the Secondary School period from the age of 12 onwards, they are on the whole less strong than boys, being more inclined to suffer from nervous strain and more liable to fatigue. It is noteworthy that with adolescence the amount of hæmoglobin in the blood of the girl becomes and remains definitely lower than that in the male, for this indicates a lessened capacity for oxygen interchange and metabolic rehabilitation. It is noteworthy also that in the female the thyroid gland is more easily and more frequently stimulated to activity. This, together with, possibly, the greater drain upon the calcium of the blood, appears to explain the more emotional and high strung nature of the adolescent girl to which so many of our witnesses have drawn attention. It also seems clear from the evidence that girls need even more careful supervision during adolescence than boys, and for a longer period. In general, boys seem to be physically stronger and to have a greater reserve of strength during the years covering secondary education. We think that these facts should always be taken into consideration in arranging the curriculum, more especially in co-educational day schools, and that there should be a well-defined difference in the extent of the demands made on boys and girls at school. The medical evidence, which is corroborated in this respect by the testimony of teachers and examiners, points to the fact that girls are, on the whole, more liable to overstrain and worry than the majority of boys, and, though we realise that adequate precautions are taken at present in many girls' schools to guard against the danger, we think, nevertheless, that more attention should be paid to this aspect of girls' education, and that the general time-table, the arrangements for games, and, if possible, the arrangements for external examinations, should be so designed as to reduce such strain to a minimum. We are inclined to think that the predisposition of girls to nervous overstrain, especially at the period of adolescence, is one of the most important factors in the problem of female education, necessitating sympathetic differentiation in the course of instruction. We consider that it is especially important that the whole question of games and sports in girls' schools, more particularly in day schools and co-educational schools, should be further explored with a view to determining whether, in the light of the known physical differences between the sexes and the apparent greater susceptibility of girls to physical and mental fatigue and overstrain, it may not be advisable to introduce further differentiation in the matter of games for pupils of varying ages in different types of girls' schools.[1] We consider that the risk of possible mental and physical overstrain incurred by girl pupils

(1) *cf.* Report of the Committee, formed in October 1921, at the instance of the College of Preceptors to consider the effects of Physical Education on Girls. (Printed in *Educational Times*, for September 1922, p. 382.)

in day schools in playing games under existing conditions is deserving of the most careful attention, as is also the question of the extent to which the competitive element may be safely introduced in girls' schools.

(2) *Does the relative susceptibility of girls and of boys to physical and mental fatigue bear on the problem of differentiation of the curriculum?*

(89) Our physiological evidence, and a large part of the evidence from teachers, indicates that girls are, on the whole, more liable to physical and mental fatigue than boys. This may be due, not only to the larger reserve of strength possessed by a boy, but also to his greater power of resisting pressure. It is well known that most boys, especially at the period of adolescence, have a habit of "healthy idleness,"[1] and are thus able to protect themselves from over-pressure, whereas girls are more amenable to authority and more industrious. Thus the girl's greater docility and industry deprive her of some of the protections which the boy enjoys. We think, therefore, that on the whole the traditional arrangement by which the number of hours spent in school and the amount of time actually devoted to many subjects is shorter in girls' schools than in schools for boys is probably based on sound reasons, and that it is inadvisable to assimilate the girls' time-table too much to that for boys.

When, under high pressure, boys and girls of similar ages and capabilities are working at the same rate in the matter of accomplishment, girls' efforts tend to flag sooner than those of boys. In view of the apparent greater liability of girls to fatigue, we deprecate long morning sessions for girls extending to, say 4 hours.[2] We consider that a morning session of 3 to 3½ hours, followed by a short afternoon session, would probably be best suited to the needs of girls. It would seem that there is much to be said for the arrangement sometimes adopted of taking the more exacting studies in the morning and devoting the afternoon to subjects which involve less severe intellectual strain. From the educational standpoint we desire to emphasise the great importance of the whole question of the relative susceptibility of boys and girls respectively to mental and physical fatigue, and we recommend that further research should be undertaken with a view to collecting reliable data on the subject.[3]

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(1) *cf.* Sir Michael Sadler's *Report on Secondary and Higher Education in Essex*, (1906), p. 35, footnote.

(2) *cf.* Prof. R. L. Archer's *Secondary Education in the nineteenth century* (1921), p. 243. "In 1864 Miss Beale resorted to a change as regards the hours at the Ladies' College, Cheltenham, which had hitherto been arranged on the plan usual in boys' schools. She now experimented with a morning lasting from 9 to 1 o'clock, broken by a half hour's interval, keeping the afternoons for individual music lessons and such extras. The plan was adopted by Miss Buss in the following year and became the standard allotment of hours with the schools of the Girls Public Day School Company." *See* the specimen time-table of a school with a long morning session on p. 192.

(3) *cf.* Burstall: *English High Schools for Girls* (1907), p. 233.

(3) *Does the available psychological evidence point to the advisability of differentiation in the curriculum?*

(90) It will be seen from the summary of psychological evidence in Chapter III. that most of the systematic inquiries undertaken hitherto with a view to determining the emotional and mental differences between the sexes have been made on persons below or above the Secondary School age. It would appear, therefore, that there are at present no very trustworthy data to warrant explicit differentiation in the education of the sexes on psychological grounds. The conclusions that have been arrived at, though interesting and suggestive, must on the whole be regarded as tentative. There seems, however, to be general agreement that girls are more receptive, more imitiative, more amenable to discipline, and more conscientious in their work than boys, who are on the whole more independent, unruly, original and creative. Both girls and boys seem to be interested in the immediate and the concrete, but boys appear to have more natural bent for processes of abstract reasoning. It would seem also that, though there is little difference in intellectual capacity between the sexes, there are noticeable divergencies in emotional response, as indicated by the degree of interest evinced for various studies. On the whole, then, the apparent differences revealed up to the present by psychological inquiry would not seem to justify any serious differentiation in the actual curriculum, though they should be taken into account in determining the methods in which certain subjects, such as Mathematics and Physics, are presented to girls. We think, too, that girls, wherever possible, should be encouraged, even at the risk of making mistakes, to develop those qualities, such as initiative and originality, which are apparently less natural to them. We do not think that any pupil should be allowed to give up a subject because he or she finds it difficult, but in the light of the available psychological evidence we consider that it should be possible to remove, for a time at all events, the pressure of an uncongenial subject when the teacher considers that no further educational benefit is to be got from it. Special care should then be taken in the presentation and method of study of other subjects with a view to removing the weakness. For example, a pupil's failure in Mathematics is probably accompanied by either a lack of accuracy or weakness of reasoning power or both. The first deficiency might be corrected by training in accurate observation in some branch of Natural Science, by the study of geometrical drawing and its application to design, and by the accurate use of language.[1] The weakness in

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(1) *cf.* Bacon's *Essay of Studies*: "Nay, there is no stond or impediment in the wit, but may be wrought out by fit studies . . . . So, if a man's wit be wandering, let him study the mathematics." Also Essay on *Nature in Man*: "Let not a man form a habit upon himself with a perpetual continuance, but with some intermission. For the pause reinforceth the new onset."

reasoning power might to some extent be rectified by a careful study of Grammar and by special attention to the logical side of literature, of music, and of geographical and historical teaching.

In attempting to appraise the psychological evidence which has been submitted to us, we have been struck by the relative absence of systematic inquiry on the intellectual and emotional differences between boys and girls of Secondary School age in their bearing on education. We accordingly recommend that systematic research should be undertaken by psychologists and teachers on groups of boys and girls drawn from Secondary Schools of different types with a view to ascertaining the actual facts. It seems most important that such inquiries should be based on wide inductions and should extend over a term of years. Such researches might reveal important facts regarding divergences of interest and differences in intellectual capacity between the sexes at various ages.

(4) *Are there any subjects in the existing curriculum for which boys and girls respectively show special aptitude or distaste, and in case there are deep-seated differences in the attitude of the sexes to certain subjects, should Secondary education aim at developing strong points or should it be partly devised to improve weak points?*

(91) Our evidence and, more particularly, the evidence from the examining bodies, shows that at present girls display more aptitude and taste for English subjects and Modern Languages than for Classics, Mathematics, and Science, with the possible exception of Biological Science. It is very difficult, however, on the evidence before us, to determine how far such differences are inherent, to what extent they are due to tradition, or how far they are the result of a difference in methods and quality of teaching. It is possible that the greater difficulty experienced by girls in dealing with Mathematics may be partly due to their greater susceptibility to physical and mental fatigue and to their greater interest in concrete subjects which have some immediate and obvious bearing on the facts of everyday life. On the other hand, there is no really cogent evidence to prove that any one subject is more distasteful to boys than another.

We have been impressed in the course of our inquiry by the empirical and unscientific character of much of the available evidence in regard to supposed differences in the educational achievements of boys and girls respectively. We accordingly recommend that systematic enquiry, based on experiments, should be undertaken, more especially in co-educational day schools, with a view to collecting trustworthy data regarding the educational achievements of groups of selected boys and girls at successive stages of their school life in different types of schools.

Pupils who found certain subjects exceptionally difficult might perhaps be dealt with on the lines indicated in the preceding section (§ 90).

(5) *How far is it advisable to differentiate in the teaching of particular subjects of the curriculum to boys and girls respectively, for example, English, Mathematics and Physics?*

(92) In the light of our evidence we are of opinion that there probably is always a certain subtle difference in the methods adopted by masters and mistresses respectively in teaching any specific subject, as there appear to be noticeable emotional differences in interest between the sexes which must influence the attitude of men and women teachers and also that of their pupils to any given subject. We are disposed to think that in certain subjects, notably English, Mathematics, and Physics, it would be advisable to introduce a more explicit differentiation in actual methods of teaching. It is generally recognised that under present conditions of teaching girls are better in English and boys in Mathematics and Physics. We offer the following tentative suggestions in regard to the teaching of these subjects with a view to rendering them more suitable to girls.

English.

It seems to be generally agreed that girls as a rule can express themselves with greater facility than boys, but that their work more frequently fails in logical arrangement and sequence of thought. Further, though the proper appreciation of the beauty of literary form in works of great literature is of much importance in education, there may be a certain danger that girls may direct their attention too exclusively to the emotional and æsthetic aspects of the subject. We accordingly suggest that there is a real need that girls should study pieces of literature selected chiefly for their logical structure and the accurate use of language. It is obvious that the æsthetic aspect of any work of great literature will appeal very differently to different minds and that the relative capacity for appreciation will vary greatly in a class of, say, 30 pupils. On the other hand, the intellectual content of a passage of literature is, as it were, more constant and is common to the whole class.

The pupil's understanding of the passages studied can often be best tested by searching questions and by appropriate written exercises designed to secure accuracy and precision. In general, more emphasis should probably be laid, especially in teaching girls, on training in exact expression; mere redundancy should be discouraged and the pupils should be taught to express their thoughts in clear simple language. An appreciable amount of time should always be devoted to private reading at home and to free composition, as is actually done at present in many schools.[1]

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(1) Reference may be made to a book which, originally written for girls' schools, has had a considerable vogue in France, where, as is well known, much attention has always been devoted to the teaching of the mother tongue: G. Lanson, "*Conseils sur L'Art d'écrire*" (Hachette).

Mathematics and Physics.

We think that Mathematics is a subject in which there might well be some differentiation between boys and girls both in subject-matter and in methods of teaching. This view appears to be widely held by competent authorities. For example, in the Report of the Education Reform Council published in 1917, the Committee on Public School and other Secondary School curricula, after giving an outline course in Mathematics intended for Secondary Schools for boys and girls respectively, pointed out that though their observations in regard to that subject were applicable to pupils of both sexes, the normal curricula of girls' schools would not admit of their covering so much ground as boys. Moreover, as the Science taught in girls' schools was frequently biological rather than physical there was not the same opportunity for co-operation between teachers of Mathematics and Science, while, on the other hand, many mathematical Mistresses did not teach Physics. Further, the manual work done by boys, unlike the needlework usually taken by girls, had a certain bearing on Mathematics.

Mr. Benchara Branford, speaking as a mathematician, suggested to us that a large part of school mathematics was equally suited to girls and to boys, though there were also aspects of the subject peculiarly and respectively appropriate to the averages of each sex. Experience had shown conclusively that some of the Arts and Crafts offered a fitting field in which to stimulate and maintain the interest of girls in Mathematics. The conditions governing the development of mathematical capacity in the average girl approximated closely to those governing the development of artistic capacity, and these two educational problems, though as yet very imperfectly explored, had been found to throw light on each other. Teachers of Mathematics should keep in touch with teachers of Arts and Crafts. There were also the fields of vital statistics, life assurance and annuities, the economics of shopping, and even banking itself, which would repay exploration by girls' mathematical teachers who had tastes in those particular directions.

We welcome the growing tendency to teach Mathematics by more practical methods to pupils up to the age of 16, and we recommend that the teaching of this subject should, up to the stage of the First School Examination, be made as concrete as the conditions of the individual school allow. This might be effected by correlating the mathematical teaching either with the instruction in Elementary Science or with geometrical design in Arts and Crafts. The first-named method is at present more practicable in boys' schools because, with some notable exceptions, girls' schools possess less adequate equipment for Science teaching, and have also, under present conditions, fewer competent teachers of Physics and Mechanics. We accordingly recommend that, in order to improve the teaching, both in

Mathematics and in Elementary Physical Science, more adequate facilities should be provided in girls' schools for the study of Physics and Mechanics. We also recommend that suitable steps should, as far as possible, be taken to secure in the future a better supply of properly trained women teachers of Physics.

(6) *How far should girls' education be influenced by home duties during school life and afterwards ?*

(93) We do not think it desirable to attempt to divorce a girl's education from her home duties and her home opportunities. On the other hand, there is a real danger now of her energies being exhausted by home duties, and her interests absorbed by social engagements, to the detriment of her mental development. We do not consider that any distinction can be drawn between the qualities that go to make a good parent and those that go to make a good citizen. No matter what the curriculum may be, the aim must be the fullest and best balanced development of mind, body, and spirit. The training in housewifery and cookery, and even in physiology and hygiene, though it may elicit the qualities of intelligence, skill, thoroughness, unselfishness, and so forth, is not so important as the general training. But there will probably be some gain in efficiency, if the girl associates the arts relating to the care of her home with the thoroughness and intelligence required in other subjects. There is a gain, too, in her feeling that her teachers appreciate the dignity of home duties and have full sympathy with her development in this direction. We must, however, remember that we are only on the threshold of the development of women's work and their opportunities. Experience may even mislead us. We think that in no part of School life is an open mind more essential. No preconceived ideas as to the best preparation, even for motherhood, ought to hamper experiment or to dim vision.

(7) *Is any differentiation of the curriculum advisable in view of differences in the environment and social function of boys and girls ?*

(94) Environment obviously plays a great part in education, and it is difficult to conceive a world where the environment of boys will not be slightly different from that of girls. Even in a Boarding School girls perform some duties, *e.g.*, mending, for which there is at present no equivalent in most boys' schools.[1] The home, too, makes considerable demands on many girls in

(1) At a few boys' schools (for example, Christ's Hospital and some of the schools belonging to the Society of Friends) the boys are taught to mend their own clothes and so forth.

Day Schools, even in term time. We should be sorry to see these home claims not met within limits, though we feel that an unduly large share of household duties is sometimes allotted to girls to the detriment of their education. There are welcome signs that boys are being encouraged to take some share in the duties of home. Another difference of environment cannot be altogether ignored, as it affects girls both at home and at school. They have not been given, and perhaps under certain circumstances cannot be given, the same freedom as boys to go where they will unaccompanied. The habit of independence, so desirable in itself, is consequently less easily formed by them.

In regard to differences in social function, we may assume that all children have to be educated with two ends in view—

(i) to earn their own living;

(ii) to be useful citizens;

while girls have also to be prepared

(iii) to be makers of homes.

Boys and girls should be educated on similar lines, though not necessarily at the same pace, so far as concerns the first and second aims. As regards the third aim, which is special to girls, we consider that some definite preparation should be given during school time. This is particularly necessary at the present day, because the requisite training tends to be given less and less in the home. The influence of the University, too, has to some extent been harmful, inasmuch as the curriculum of Secondary Schools has been largely planned to meet the requirements of the comparatively few pupils who desire to proceed to the University, and has ignored the needs of the large proportion of girls who approach life through other avenues. We deprecate the idea that the only manual work open to girls is that connected with the use of the needle.

(8) *How far may further differentiation between the curriculum for boys and that for girls be advisable in view of differences in the careers which they will probably follow as men and women?*

(95) The problem is a complex one, and facile generalisations are misleading. The broad difference between boys and girls—that the former will earn the family income and the latter will administer it, bring up children, and look after the house—is relevant as far as the majority are concerned, and we discuss later its bearings on educational policy. On the other hand, education must consider the whole of life, and it must be remembered that, though the majority of women marry, those married at any one time barely outnumber the unmarried and the

widowed,[1] most of whom must maintain, or help to maintain, themselves. The age at which marriage takes place and the necessity of carrying on wage-earning employment between school and marriage varies from one section of the population to another. The assumption that women give up wage-earning employment on marriage needs some qualification. Though true at present of the majority, it is less true of the manual workers than of the business or professional classes, of the north than the south, of a textile district than of a mining or agricultural village. It is perhaps somewhat less true of the middle classes to-day than it was a generation ago. These and other differences of economic and social condition blur the simplicity of the picture. Nor should it be necessary to suggest that economic considerations—the future employment of boys and girls in industry, commerce, and in the professions—are not the only points which need attention. Men and women alike have their personal interests and their responsibilities as citizens. Both must be given like weight in planning the education of boys and girls.

(96) The facts which require attention are, therefore, numerous and are also in a continual process of change. The common tendency of each generation has been to assume that the conventional particular division of work between the sexes was the only one possible, because it was the expression of unalterable differences of capacity. In point of fact, however, the history of the last century shows clearly that the conventional allocations of work between the sexes are still unstable, and that to base educational policy upon them are to build on conditions which may be on the eve of disappearing. In the 18th and early 19th centuries it seemed self-evident that, as far as the well-to-do classes were concerned, there was a sharp line of cleavage between both the occupations and capacities of women and men. The latter were to procure the family income; the former were expected to occupy themselves chiefly with

(1) Table showing the Proportion of Unmarried, Married and Widowed in 1,000 Females in each Age Group.

Age.	Single.	Married.	Widowed.
15–20	988	12	—
20–25	757	242	1
25–35	355	632	13
35–45	196	753	51
45–55	158	709	133
55–65	132	584	284
65 and upwards	121	313	566
All ages over 15	390	506	104

(*Census of England and Wales*, 1911, Vol. VII. (Cd. 6610–1913), p. xxxv.)

housework and the care of the family. Girls must not be encouraged to desire education, for it would make them discontented and anxious to leave home. Girls must not, like boys, be subjected to an oral examination, for "modesty is the ornament of the female character." Girls must not be admitted to the same written examination as boys, for they could not possibly reach anything like the same standard. If the bold step were taken of admitting them to such tests, the results must not be published in order of merit, on account of the more excitable and sensitive constitution of the female. This attitude was probably not due to any anti-feminist feeling, as at the time there was not sufficient competition between men and women to provoke it. Still less was it the case, as Mill pointed out, that the prevailing sentiment as to "the natural sphere" of women and men was based on physiological or psychological investigations such as those to which we refer elsewhere. The principal reason was that the exclusion of women of the well-to-do classes from most active occupations appeared to be inevitable, because, in fact, in England it was customary, and custom led public opinion to overlook the inference which might have been drawn from the experience of those countries—for example, the British Colonies—and those sections of the population, in which active work on the part of women at some period of their lives was the rule rather than the exception. "As to the women of middle ranks," wrote the author of a book on "The Industrial and Social Position of Women," published in 1850, "they have in industry no place whatever; they have not been educated for industrial pursuits; there are no occupations open to them suited to their status; nor is the public mind yet prepared for them undertaking such occupations. In domestic changes and in personal incident alone is she permitted to feel an interest." [1]

(97) The change which has made it customary for a large number of middle-class women to follow professions would have seemed incredible when those words were written, and should be a warning against any premature attempt to draw a sharp line of demarcation between the occupations of the sexes. The public teaching profession, which developed after 1870, is predominantly recruited from women, and could not probably have developed to its present magnitude in any other way. Women clerks have been employed in the Civil Service since 1881,[2] and large numbers of women clerks are also employed by the various Local Bodies, in Counties, Municipalities, Districts, and so forth. Since the appointment of the four Women Inspectors under the Home Office in 1893 the higher ranges of the Public Service have been increasingly opened to women, and at the present time they are eligible for appointment in many Departments of State. The

(1) Contrast this with the article on *Women in Industry* in the *Edinburgh Review* for 1859 (No. ccxxii., Article I).

(2) Female Clerkships were first instituted in the Post Office in 1881.

professions of Medicine and Law were opened to women in 1859 and 1919 respectively,[1] and women are to be found on the staffs of nearly all the Universities. In the world of business clerical work has long been largely in the hands of women, and the number of responsible positions open to them is steadily growing. The development of various kinds of organised "social work" has created a considerable number of openings which are largely, if not predominantly, filled by women.[2] Nor is it only in the non-manual working occupations that changes have taken place. Women, indeed, have always been employed in industry. But the line of demarcation between their work and that of men has shifted again and again in the course of the last hundred years. In the cotton industry spinning was formerly carried on by women and weaving by men; with modern machinery spinning is done mainly by men and weaving by women. The general tendency of the subdivision of processes and the progress of machinery has been to create new employments carried on mainly by women, to break up crafts formerly reserved for men, and to transfer ranges of them in part predominantly to women. As examples of the first tendency we may mention the trades concerned with the preparation of food and tobacco; as examples of the second the manufacture of machine-made clothing, boots and shoes, pottery. Both in non-manual and in manual occupations the customary division of work between men and women was temporarily revolutionised by the war (*e.g.*, in engineering), and though it is too soon to attempt any generalisation, it is probable that some, at least, of the effects will continue. In the light of these changes few persons would venture to predict with confidence that even those employments which seem at present most unsuited to women will not be opened to them by a change of technique or alteration of social customs.

It is, however, evident from the statistics quoted on page 127, that at the present time, if the majority of girls can expect to be married and undertake household duties, by far the larger part of that majority cannot expect to enter into the married state until after the age of twenty-five years. There is thus a period of eight years or more during which the girl who has left school either stays at home, undertaking household duties, or for the time being earns a livelihood outside the home. And undoubtedly, from the professional classes downwards, the modern tendency is for the girl on leaving school to take up some form of occupation outside the home, in the endeavour to maintain

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(1) Women were permitted to become solicitors by Section 2 of the Sex Disqualification (Removal) Act, 1919 (9 & 10 Geo. V., cap. 71.)

The first woman student for the Bar of England was admitted at Lincoln's Inn on January 1st, 1920.

(2) Women were enfranchised by the Representation of the People Act, 1918 (7 and 8 Geo. V., cap. 64, § 4 (1)) and were rendered eligible to sit in the House of Commons by the Parliament (Qualification of Women) Act, 1918 (8 and 9 Geo. V., cap. 47).

herself. Thus the ordinary girl, whether she looks forward to the married state or not, should be given an education which prepares her to earn her livelihood. It is clear, therefore, that if the education we offer to girls is to subserve the needs of the majority, it must be designed both to prepare the pupil for household duties (employing this term in its broadest sense) and for wage earning, provided that girls and boys still have to pass the same examinations.

(98) We have shown in Chapter I. that the governing principle which guided the education of women up to (say) 1860 was to accentuate differences between the sexes, and that the changes since that date have been directed in exactly the opposite direction. The question is how far the latter tendency ought to be modified or reversed. On surveying the changes in the economic position of women there seem to us to be certain general conclusions which may serve at least to narrow the area of discussion. The first conclusion is a negative one. There may be good reasons from other standpoints for further differentiating between the curriculum of boys and that of girls in Secondary Schools, but it would be unwise to base such differentiation upon the existing differences in the work done by men and women, since experience suggests that the division of work between the sexes has changed frequently in the past, and that the range of employment followed by women is likely on the whole to increase. If this is so, the prudent course would seem to be to keep open as many doors as possible from the school into the world, and to avoid any policy based on the idea that certain occupations, and certain occupations only, can be successfully undertaken by men or by women.

(99) Our second conclusion is that any further differentiation that may be thought admissible must not be such as to impede the Secondary School in its task of giving a good general education both to girls and to boys. To say this is not to prejudge the question whether the most suitable medium of such an education may not differ in some respects for the two sexes. It means merely that the primary aim ought not to be sacrificed to the desire to provide for what are thought to be the special interests of girls, though use should be made of those special interests in arranging the curriculum. The same point—the importance of ensuring that as many girls as possible should receive a good general education—was emphasised from another angle by witnesses who were in contact with girls and women in business, the Universities, and the professions. The Director of the educational department of a great industrial concern told us that in the light of business requirements "the whole question of the suitability of Secondary School curricula was best considered from the standpoint of the cultivation of general intelligence, as distinct from the accumulation of information." "What we want," said a prominent banker, "is a good

education, not specialised at all, or, if specialised, then only with an indirect bearing upon a banking career. We learn to distinguish strongly between the various schools from which we are accustomed to receive candidates. From some we are accustomed to get candidates who show good teaching in their brightness and general intelligence; others are, unfortunately, notorious for the very opposite." "Many girls," said the representatives of a great bank, "could not express themselves clearly. . . . From the point of view of the banking services we should prefer that future entrants should remain at school till the age of 18, working at ordinary school subjects." In the same way the Employment Committee of the London Society for Women's Service expressed the opinion that as large a number of girls as possible should enter for matriculation or its equivalent before leaving school, and that boys and girls who had remained at a Secondary School till the age of 18 before starting upon their technical training had a very decided advantage over others when it came to grappling with the problems of life.

(100) In the third place, we think that the decision as to further differentiating between the curriculum of boys and that of girls may be to some extent a matter which should be settled from the point of view of local circumstances. The economic conditions and social customs affecting the interests of children and their future occupations vary widely from district to district. A general rule applying to areas so different as London, Gloucestershire, Lancashire, and Durham can hardly fail to do violence to the facts. What is to be desired is that each area should work out its own solution of the problem in accordance with its own needs and traditions.

Of the same nature is the question of vocational bias. We are of opinion, from the evidence submitted, that there are methods of approaching certain subjects which, while leaning towards the industries of particular localities—thus partaking of the nature of vocational bias—are in themselves educationally sound. It is obvious, for example, that scientific subjects such as Mathematics and Physics will make a stronger appeal in an engineering centre such as Sheffield, and Chemistry in such places as Widnes, St. Helens, and Stoke-on-Trent. Moreover, in such a study as History the subject gains in educational value when approached from or illustrated by the occupations and industries of the district. It is largely a question of point of view. If the vocational bias is introduced with a view to illuminating the whole of which it forms a part, then it is obviously playing the rôle of an important educational instrument. We agree, therefore, that it may often happen that a vocational bias may be of great service in assisting the general development of the child, and it follows that, if this view is sound, it may have a considerable bearing on differentiation of the curriculum for boys and girls.

(101) In the fourth place, it seems to us important that the determining voice in the matter should rest, as far as possible,

with women themselves. The decision must depend largely on the view held as to the kind of education most likely to conduce to the happiness of girls when they leave school, and that in turn on the conception formed of the life and work of women. On such a point it seems reasonable to expect that the judgment of women of experience is likely to be a safer guide than that of men, and every step should be taken to give it full weight. It should, for example, be the rule for women to sit on all examining bodies which hold examinations for girls,

It is obvious that these general considerations are not conclusive one way or the other. The majority of the earlier pioneers of women's education appear to have thought that the claim that women should have as good an education as men, and that they should be free to enter occupations solely on their merits, implied that they should have the same education as men. It is not so clear to-day, however, as it seemed to them that that conclusion necessarily follows. In the first place, the fact that the majority of girls will marry and have the care of a family, if not of such exclusive importance as was generally supposed in the first half of the last century, is yet of very great significance. In the second place, though it be admitted that an increasing number of women will follow the same occupations and have the same civic interests as men, and need, both for that and other reasons, a good general education, it is conceivable that the best medium of such an education will not be the same in each case. Finally, it must be remembered that the character of the problem has changed in the last fifteen or twenty years. The education of girls up to almost the end of last century developed partly under the influence of a more general movement for the emancipation of women. That movement has now perhaps achieved sufficient success to be no longer so potent a source of inspiration. Not less important, the great extension of Secondary education in the last decade has brought into the Secondary Schools a number of girls from families with a somewhat different outlook, and with interests diverging in several respects from those of the rather select class of girls who received Secondary Education a generation ago.

The problem, therefore, which appears to be more complex than was realised by some of the earlier pioneers of women's education, would appear to be one of using for educational purposes any interests which are peculiar to girls, without narrowing their education in such a way as either to make it more difficult for them to enter occupations for which a good general education is necessary, or to render them less capable of intelligent citizenship in later years. It is possible that it might be partially solved by providing that the curriculum should contain a large number of possible choices, so that it might be easy for girls (and for boys) to follow the appeal of any special interest when it is felt by them. Greater elasticity of the curriculum might conceivably help to solve the question of differentiating the curriculum as between boys and girls.

(9) *How far are existing differences in the education of boys and girls dependent on tradition ?*

(102) The following differences seem to be clearly dependent on tradition :—

(i) The actual hours devoted to school work have been less in girls' schools than in schools for boys. This was due to the absence of an afternoon session in the older schools for girls, a practice which still continues in some of these schools.[1] Even in the newer girls' schools, where work is also carried on in the afternoon, the morning session is usually shorter than in boys' schools. This was owing to the tradition that girls should be free to take part in the social life of the home and also possibly to the view which prevailed in the early days of girls' education that they should be accompanied to and from school.[2]

(ii) Until recently the period of a lesson has been shorter in girls' schools than in boys', and there is, in consequence, more lecturing and teaching, and less independent though supervised work in school. The pressure of external examinations, which appears to be more acutely felt in girls' schools, also partly accounts for the development of intensive methods of teaching.

(iii) Partly owing to the early traditions of girls' schools described in Chapter I., Classics and Mathematics have not the same assured position in most schools for girls as they hold in boys' schools, whereas, on the other hand, in girls' schools more time and attention were from the first devoted to English subjects and modern languages. These considerations, coupled with differences in the quality and the methods of teaching, largely account for the fact that girls do not, as a rule, attain the same standard in Classics and Mathematics as boys, though, on the other hand, the majority of girls reach a better standard in English and frequently also in modern languages.

(iv) Owing to the partial survival of the older tradition of accomplishments for girls, the æsthetic subjects, more especially Music, have always occupied a stronger position in girls' schools than in boys'. At the present time, owing to the influence of tradition, many girls devote more time to instrumental music and are also often expected to take fine or plain needlework, even when they have little natural taste for those subjects.

(v) In Science, boys generally take Physics or Chemistry, or both, whereas girls usually take Botany. This difference is largely due to the fact that most of the older girls' schools were unable to provide the expensive apparatus required for Chemistry and supposed to be required for Physics.

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(1) *cf.* footnote (2) on page 120.
(2) *cf.* Burstall : *English High Schools for Girls*, p. 235.

(10) *How far is it advisable to relieve the congestion of studies, more especially in girls' schools, and to provide a wider range of choice for the pupils?*

(103) We have shown in Chapter I. how the classical curriculum has gradually been widened by the introduction of other subjects such as Mathematics, Science, and Modern Languages. The greater variety of choice thus offered to the pupil has, however, been limited by the fact that the increasing pressure of examinations leaves no time for the study of subjects of æsthetic rather than of historical or scientific value. Leisure has, moreover, been curtailed by the introduction of organised games. Pupils accordingly find themselves oppressed with new demands and yet limited in their freedom of choice. This overcrowding presses even more hardly on girls than on boys. In view of the possibility that many girls will have to earn their own living, the girls' schools must, in existing conditions, prepare the mass of their pupils for the same examinations as boys take and for the same minimum number of subjects in these examinations. But girls add to this various extra subjects regarded as vocational, some of which, such as Needlework, may have little educational value, and they are also more apt than boys to spend much time in æsthetic subjects traditional in girls' schools, and in acquiring executive ability in Music or Drawing. Moreover, girls are more apt to be fatigued out of school with domestic or social duties, and very often live a more sedentary and therefore a less healthy life. Thus the sex more liable to fatigue has the heavier burden placed upon it. So far the method of obviating these difficulties has been to diminish the number of hours spent in school—a method which we approve, but which must necessarily alter the character of the teaching, since the subjects to be taught are more than in boys' schools, and the time to study them less.

We feel very strongly that girls should not be debarred from any opportunities of development open to their brothers, and should be free, if they so desire, to study any subject of the ordinary school routine accepted for boys. But we consider it essential that the strain should be lessened.

Real relief from the congestion of studies can probably only be secured by a revision of the curricula from the point of view of determining the studies best adapted for boys and girls at each successive stage of their development. Such a remodelling of the curriculum in the light of modern psychology and our social requirements is an ideal at which we may aim. Meanwhile, however, certain suggestions are put forward, some affecting girls only, and some both boys and girls. These are as follows :—

(i) The idea should be encouraged that girls should take the First School Examination on an average a year later than boys. We fully recognise, however, that this is not desirable in all cases and is unnecessary in some.

(ii) There should be more freedom of choice for girls in regard to the subjects taken at some stage earlier than that of the First School Examination. We think it important that, in addition to æsthetic and domestic subjects, all girls in Secondary Schools should begin, and work for a certain length of time at English Subjects, one or more foreign languages, Mathematics, and Science. It is, however, impossible for every pupil profitably to carry on all these subjects simultaneously to the standard of the First School Examination. It would seem, therefore, that freedom of choice is needed at some previous stage, with the possibility of continuing all the subjects, or of emphasising some and giving less time to others, or of dropping some subjects altogether for the time, provided always that due regard is paid to the necessity of having a well-balanced curriculum for each pupil, with special attention to weak points. We agree, therefore, that the normal curriculum up to the time of the First School Examination should include the study of English, at least one foreign language, and some Mathematics and Science, in addition to any æsthetic or domestic subjects taken, but we hold that it is equally important that pupils should not necessarily be examined in all these subjects, and that heads of schools should have freedom to modify this normal curriculum for individual pupils or groups of pupils when desirable.

(iii) As a corollary we think that in the First School Examination Art and Music (when satisfactory syllabuses have been evolved for them), should form a Group standing on an equality with other Groups, and that success in any three of the four Groups (provided that a candidate passes in English in Group I.) should be sufficient for a certificate. We attach great importance to a due development of the study of Music and Art both for boys and for girls, but more especially for girls.

(iv) Much greater freedom should be given to head mistresses to plan courses suited to the needs of non-academic pupils over 15. We have already suggested in Chapter II. that the principle underlying Article 9 of the Regulations in regard to Domestic Courses for girls over 15 should be extended so as to encourage the provision of other courses which, though not directly vocational, would have a bearing on the future careers of the pupils. We understand that the Board are prepared to consider proposals for courses with a rural or a commercial bias under the existing Regulations, but we recommend that further latitude should be allowed, especially for girls. We would suggest that wide discretion should be left to head mistresses in planning such courses designed to meet the needs of non-academic girls over 15 years of age. One type of curriculum, for example, might consist

largely of English Literature, one foreign language, the Arts, including Music, and possibly some instruction in Domestic Subjects, with some form of craft work for pupils who had a bent in that direction; another, again, might embrace one foreign language and some study of the History, Geography, and Economics of the country or countries concerned.

(v) The arrangements for Advanced Courses should be made more flexible so as to afford a wider field of choice, more especially for girls, who may, for example, desire to specialise in Art or Music with suitable ancillary subjects, or to take a Course comprising a branch of Science, such as Biology, and either one or two languages, or Mathematics, or Economics. We would suggest for the consideration of the Board that steps might be taken to insert a clause in the Regulations for Secondary Schools, conferring on the Board power to approve, at their discretion, syllabuses for Advanced Courses in suitable combinations of subjects, including Art and Music, submitted by the school authorities for selected groups of pupils.

(vi) Steps should be taken to reduce the amount of homework set to girls in Day Schools, especially in view of the fact that most girls in day schools are expected to do a certain amount of household work in the home.

(11) *How far is it desirable to provide more free time and greater facilities for the pursuit of leisure occupations?*

(104) We consider that this aspect of school life is of exceptional importance. It might epitomise, but in fact does not, the tastes and predilections of individual boys and girls.

Investigation shows that almost all the field that should belong to this side of school life has been handed over to subjects newly admitted to the curriculum, or to others already in possession; or, again, to compulsory games in boarding schools and to excessive homework in day schools. There is some reason to think that the allotment of time usually made to these subjects restricts or prevents the proper development of the individual, as distinguished from the group. Games, when circumstances are favourable—a condition by no means universal—achieve much in the way of health, of self-restraint, of initiative; homework furnishes a salutary test of the degree of mastery attained by the scholar in the subjects studied. But games, as now pursued, tend to conventionalise the growing mind, and excessive homework dulls it. It seems desirable, therefore, that the hours assigned in boarding schools to organised games and in day schools to homework should both be materially diminished.

We fully recognise that both games and homework have one important advantage; from an administrative standpoint they are easy to systematise; yet if we regard them as factors in the evolution of interests that make for individuality, this is an

advantage too dearly purchased. Under the combined pressure of a full curriculum flanked by games on the one side or homework on the other, leisure occupations, which, by opening a way for the development of personality, might discover bents that would make for happiness in after-life, either do not come into existence, or function imperfectly and with difficulty. Thus ordinarily a school finds little place, or at best a tolerated one, for the various forms of intellectual exercise which foster originality or connote personality. Full provision for these purposes would doubtless be expensive to set up and difficult to handle, but we nevertheless think that means should somehow be found to meet both requirements. Artistic expression could be fostered in individual boys and girls if, for example, adequate opportunities in music, painting and sketching were made available; similarly, scientific aptitude or manual dexterity could be brought out by the outdoor study of nature, by use of the microscope and the making of collections, by constructive work in wood or metal; openings for the cultivation of household skill could be found in sewing and embroidery, in dress-designing, in cookery and the like; while social instincts could be brought to practical proof in corporate activities such as scouting, acting and debating.

The test of good school organisation is the existence of suitable arrangements, devised for meeting needs like these as they arise, but varied as circumstances alter. Such organisation is, however, far removed from mere systematisation or pigeon-holing. It means the right adjusting of relations in a living organism, and, as such, is rare as well as difficult. Yet, in view of the significance and the importance of the issues involved, the practical difficulty of providing and working the necessary equipment should no longer be held to justify its virtual non-provision except in the more expensive schools. For, so long as such equipment is not provided, the individual, as such, will continue to be sacrificed to the group; and, as regards the school, the negation of its original purpose as declared in its name will remain, and in practice will hold back, to the detriment of individual and community alike, all aptitudes which do not take the beaten road.

On the whole, then, we are disposed to think that in many schools, and more especially girls' schools, the daily life is over-organised. The obvious result of such methods is to produce girls and boys who, though well-informed, are rather dull, and lacking in initiative and freshness of outlook. We regard this as a serious defect, and recommend that steps should be taken to allow boys and girls, but more especially girls, more free time in which to develop their own individual interests.

RECOMMENDATIONS.

I.—*Recommendations for greater freedom in the Curriculum for both Boys' and Girls' Schools.*

(105) (1) That greater freedom should be introduced into the curriculum both in boys' schools and in girls' schools, but more especially in the latter, and that the Regulations both of the Board of Education and of Examining Bodies in regard to the number of subjects to be offered should be modified accordingly.

§§ 46, 47, 48, 101.

(2) That the Matriculation requirements of certain Universities, which at present determine with undue rigidity the curriculum of the upper forms, both in boys' schools and in girls' schools, should, in the interests of freedom, be relaxed.

§§ 47, 51.

(3) That the curricula and time tables of schools should be modified in order to allow boys and girls, but more especially senior girls, more free time in which to develop their own individual interests.

§§ 45, 46, 47, 48, 104.

(4) That a more prominent and established place in the ordinary curricula of schools both for boys and for girls should be assigned to aesthetic subjects, including Music, Art and other forms of aesthetic training[1], and that special attention should be paid to developing the capacity for artistic appreciation as distinct from executive skill.

§§ 47, 52, 103.

(5) That, while all candidates for a First Certificate should be required to pass in English in Group I., the Group containing Music and Art (Group IV.) should be accorded full parity in the First School Examination with Groups II. and III.

§§ 47, 52, 103.

(6) That Music should be made a principal subject for the Second School Examination.[2]

§ 52.

(7) That the present arrangements for Advanced Courses should be made more flexible in order to provide a wider field of choice; and, in particular, that a clause should be inserted in the Regulations for Secondary Schools empowering the Board to approve at their discretion syllabuses for Advanced Courses in suitable combinations of subjects, including Music and Art.

§§ 56, 57, 103.

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(1) Such, for example, as dancing, dramatic representations associated with the teaching of the mother-tongue and foreign languages, suitable artistic crafts, and, possibly, also Eurhythmics as an adjunct to the teaching of Music.

(2) *See* Appendix IV.

II.—*Recommendations for the Assimilation of Girls' Schools and Boys' Schools in certain respects.*

(8) That the methods of teaching Mathematics, which are now being introduced into boys' schools, should also be more extensively applied in girls' schools, and in particular, that Elementary Physics should be taught in girls' schools in closer association with Mathematics than is at present the case.

§§ 76, 92.

(9) That more care and attention should be given (*a*) in boys' schools to the use and comprehension of English and to the study of English Literature as a means to this end, and (*b*) in girls' schools to the analysis and understanding of the logical content of works of literature. §§ 76, 92.

(10) That adequate facilities should be afforded for girls who show special aptitude for Manual Instruction to receive it under the same conditions as boys; and that similar facilities should also be afforded to boys in Domestic Subjects. [See also note to Recommendation No. 15.] §§ 53, 82.

(11) That in girls' schools the organisation of games should be left more to the girls themselves on the lines adopted in most boys' schools, and that games mistresses should not supervise girls' sports so much as at present. §§ 54, 86, 104.

III.—*Recommendations for Differentiation between Boys' and Girls' Schools in certain respects.*

(12) That girls should, as a rule, be encouraged to take the First School Examination about a year later than boys; and that if and when State Scholarships are again awarded, the regulations for girl candidates should be modified accordingly.

§§ 51, 72, 73, 103.

(13) That in Girls' schools the pressure of external examinations, which is in our opinion partly responsible for much over-teaching and for the unduly passive attitude of many pupils, should be reduced wherever possible. §§ 47, 51, 103.

(14) That more attention should be devoted by parents, head mistresses, and school doctors to the possibility of taking suitable precautions for the protection of girls against physical fatigue and nervous overstrain. §§ 50, 61, 62, 68 (e), 71, 72.

(15) That in girls' day schools and in other day schools attended by girls steps should be taken to reduce the amount of preparation required from girls, which, in some instances,

is at present excessive in view of the relatively heavy domestic duties often performed by them in their homes.[1] §§ 46, 84, 103.

(16) That the morning session in girls' schools should not exceed three-and-a half hours.[2] §§ 83, 89.

(17) That the Board of Education should encourage the provision in Secondary Schools of courses adapted to the needs of non-academic pupils above the age of fifteen who desire to remain at school for a further period.[3] §§ 40, 45, 103.

IV.—*Recommendations in regard to special enquiries.*

(18) That systematic enquiries should be undertaken in order to collect trustworthy data on the question of the relative susceptibility of boys and girls between the ages of 11 and 18 (or 19) to mental and physical fatigue, both in ordinary school work and in games. §§ 61, 68 (e) and (f), 71, 72, 85, 88, 89.

(19) That further enquiries should be undertaken with a view to ascertaining what games and physical exercises are most suitable for girls of varying ages, more especially day girls, in the different types of schools. §§ 50, 54, 86.

(20) That research should be undertaken by psychologists and teachers on groups of boys and girls respectively, drawn from Secondary Schools of different types, with a view to collecting data (a) in regard to the intellectual and emotional differences between the sexes in their bearing on education, and (b) in regard to the achievements of groups of boys and girls in the various subjects of the curriculum at successive stages of school life. § 90.

V.—*Miscellaneous.*

(21) That further consideration should be given to the whole problem of the curriculum and organisation of Junior Schools and Departments in its bearing on the future education of the pupils, more especially in Girls' Schools. §§ 38, 44.

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(1) In this connection the Committee desire to express a hope (they cannot, in the nature of the case, make a recommendation) that the parents of girls in Secondary Day Schools will not expect them to perform an excessive amount of domestic work in the home; and they would add that they welcome the tendency of the Boy Scout organisation in encouraging boys to perform their share of household duties.

(2) *cf.* Prefatory Memorandum to the Board's Regulations for Secondary Schools for 1906–7, p. xi. "It is very doubtful whether in any circumstances a school meeting lasting longer than three hours is desirable or even ultimately economical."

(3) The principle implicit in Article 9 of the Regulations for Secondary Schools in regard to Special Domestic Courses for girls over fifteen might be extended to cover the provision of such Courses.

(22) That the various subjects of the curriculum should be taught in closer correlation with one another. §§ 45, 92.

(23) That the methods of presenting those subjects, which are found in practice to be uncongenial to a number of pupils, should be revised with a view to rendering the teaching of such subjects more practical, and to showing their bearing on other studies in which the pupils may be more directly interested, and also on the affairs of everyday life; and, in particular, that the vocations which in any district touch subjects of the school curriculum should be utilised for the purpose of making the school work more concrete. §§45, 92,100.

(24) That women should be adequately represented on all committees and examining bodies which deal in any way with girls' education. § 101.

(Signed) W. H. HADOW (*Chairman*).
P. ABBOTT.
GEORGE ADAMI.
S. O. ANDREW.
ERNEST BARKER.
E. R. CONWAY.
D. H. S. CRANAGE.
GORELL.
IVOR H. GWYNNE.
F. HAWTREY.
P. R. JACKSON.
STANLEY LEATHES.
*A. J. MUNDELLA.
BERTHA S. PHILLPOTTS.
ROBERT H. PICKARD.
FRANK ROSCOE.
R. P. SCOTT.
E. M. TANNER.
R. H. TAWNEY.
†W. W. VAUGHAN.
J. A. WHITE.

ROBERT F. YOUNG (*Secretary*).
September 29th, 1922.

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* Except Chapter I.
† Subject to a reservation with regard to Recommendation No. 5.

MEMORANDUM BY MR. W. W. VAUGHAN EXPLAINING HIS REASONS FOR DISAGREEING WITH RECOMMENDATION No. 5.

Though agreeing with recommendation No. 4, that a more permanent and established place in the ordinary curriculum of both sexes should be assigned to aesthetic subjects, and with its corollary, recommendation No. 6, I am against (*a*) the form of encouragement suggested by recommendation No. 5, and (*b*) the added recommendation that a Pass in English should alone be obligatory, for these reasons:

A.—(1) It seems to me a pity to tamper just yet with so important a part of the regulations for the School Certificates. Great difficulty has been experienced in persuading professional and other bodies to accept these as evidence of a satisfactory School education. The existing difficulties would be increased, and old difficulties, now buried, would be revived if Group IV. were placed on a parity with the other Groups.

(2) Many head masters are anxious that School Certificates should be accepted for Matriculation purposes, without any conditions. This could less easily be pressed for if Group IV. were accorded full parity.

(3) At present the regulations for School Certificates, certainly in the case of the Oxford and Cambridge Schools Examination Board, lay down that a candidate's work in Group IV. will be considered in conjunction with his work in the other three groups in estimating his claims to a Certificate. The strengthening of this regulation seems to me to go very far towards meeting the wish expressed in recommendation No. 4, and to give the non-Mathematical girls or boys (though it is really the former of whom we are specially thinking) a chance of recovery if they show special aptitude in one of the Group IV. subjects. Further help would be given by allowing all candidates (as is now done by some of the Examination Boards) to offer the five subjects at present required, from all four Groups and not from the first three groups only.

(4) Another objection to the recommendation is that it would complicate the routine of a School, and consequently increase the expense of staffing. It would be very difficult for a head master, or a head mistress, to resist the claims of one girl or boy to give up Latin for Music; of another to give up Mathematics for Music.

(5) The standard now required for a Pass in either Group II. or III. is not, certainly, a high one, and it is only with a Pass that we are concerned. Boys now have a good margin of time to spend on other subjects; girls would have this if recommendation No. 12 were carried out.

(6) I am very doubtful whether Art could be examined at this stage without the encouragement of wrong methods of teaching the subject.

(7) The result of recommendation No. 5 would be that about 5 per cent. in Boys' Schools, and a rather larger percentage in Girls' Schools, would avail themselves of the new option. Even if those who took it gained, of which I am not convinced, the rest of the School would, I think, tend to be neglected in these subjects. Our aim should be to raise to a higher level the aesthetic and musical appreciation of the whole School rather than to cultivate intensively a small proportion of it.

(8) For a pupil to obtain a Pass in either Group II. or III., at least five periods a week must have been devoted to the subject for about four years, *i.e.*, between $12\frac{1}{2}$ and $16\frac{1}{2}$. No syllabus in Art that I have seen proposed, no examination paper which I have heard suggested, demands an equal amount of time for Group IV. In my opinion it would be inadvisable to give it at this stage of a child's education.

B. My objection to the Pass in English being required if Passes in the other subjects are not required, is based on—

(1) The fact that English must necessarily tell right through the examination, and consequently it does not require to be placed in a privileged position.

(2) That Scripture knowledge and Geography, as outlined in the schedule, do not seem to me to have any claim to a consideration that is not given to French or Latin, Mathematics or Science.

(3) That if attention is concentrated on what is given in the schedule under "English," too much time may be spent on précis writing and the prepared English books.

(4) That a pass in English is now easier to obtain than a Pass in any other Group, and that consequently English does not require special protection.

Both changes would accentuate the tendency to evade the stern intellectual discipline that the study of Latin, and Mathematics with Science demand.

W. W. VAUGHAN.

APPENDIX I.

(A.)—LIST OF WITNESSES.

(i) *Individual Witnesses.*

Mr. A. Abbott, Chief Inspector of Technical and Continuation Schools under the Board of Education.

Mr. J. H. Badley, Head Master of Bedales School, Petersfield.

Mr. P. B. Ballard, D.Litt., District Inspector under the Education Department of the London County Council.

Mr. C. W. Bailey, Head Master of Holt Secondary School, Liverpool, and Chairman of the Mixed Schools Committee of the Incorporated Association of Head Masters.

Mr. F. S. Boas, LL.D., Divisional Inspector under the Education Department of the London County Council.

Mr. Benchara Branford, Divisional Inspector under the Education Department of the London County Council.

Mr. W. A. Brockington, O.B.E., Director of Education for Leicestershire.

Miss M. Dorothy Brock, Litt.D., Head Mistress of the Mary Datchelor Girls' School, Camberwell.

Mr. H. M. Brownfield, O.B.E., L.R.C.P., M.R.C.S., School Doctor of Bedales School, Petersfield.

Miss Gladys A. Burlton, Director of the Education Department of Messrs. Selfridge & Company, Limited.

Miss Sara A. Burstall, Head Mistress of the Manchester High School for Girls; Special Lecturer in Education, University of Manchester.

Miss Janet M. Campbell, M.D., M.S., Chief Woman Medical Adviser to the Board of Education.

Señor José Castillejo, Director of the Instituto-Escuela de Segunda Eseñanza, Madrid.

Miss A. B. Collier, of Newnham College, Cambridge.

Mr. Christopher Cookson, Secretary to the Secondary School Examinations Council.

Miss Winifred Cullis, O.B.E., D.Sc., Professor of Physiology at the London (Royal Free Hospital) School of Medicine for Women.

Miss B. M. Cunnington, Woman Staff Inspector of Technical and Continuation Schools under the Board of Education.

Mr. E. Salter Davies, Director of Education for Kent.

Mr. W. Edwards, Chief Inspector of the Central Welsh Board.

Mr. A. Eichholz, C.B.E., M.D., Chief Medical Inspector under the Board of Education.

Mr. R. W. Ferguson, Educational Organiser to Messrs. Cadbury Bros., Ltd.

Mrs. Emily E. Flemming, M.D.

Mr. W. C. Fletcher, C.B., Chief Inspector of Secondary Schools under the Board of Education.

Miss F. R. Gray, High Mistress of St. Paul's Girls' School, London.

Mr. C. W. H. Greaves, Head Master of Knaresborough Rural Secondary School.

Capt. F. H. Grenfell, D.S.O., R.N., Staff Inspector of Physical Exercises under the Board of Education.

Mr. J. H. Hallam, Chief Officer for Higher Education for the West Riding of Yorkshire.

Mr. E. W. Holman, Head Master of the Municipal Secondary School, Bury.

Mr. Gustav Holst, Music Master at St. Paul's Girls' School, Hammersmith.

Mr. G. H. Hooper, Occasional Inspector in Art under the Board of Education.

Mr. E. G. KEEPING, Superintendent of Staff, London County Westminster and Parr's Bank, Ltd.

Miss M. KENNEDY, H.M. Inspector of Secondary Schools under the Board of Education.

Mr. BEVAN LEAN, D.Sc., Head Master of Sidcot School, Winscombe, Somerset.

Miss LUCY A. LOWE, Head Mistress of Leeds Girls' High School.

Miss G. MCCROBEN, late Head Mistress of the Wakefield High School.

Mr. GEORGE E. MACLEAN, LL.D., Ph.D., Director of the British Division of the American University Union in Europe.

Mr. D. A. MACNAUGHTON, Divisional Inspector of Secondary Schools.

Mr. STEWART MACPHERSON.

Miss WINIFRED MERCIER, Principal of Whitelands Training College, Chelsea.

Miss J. I. MONKHOUSE, Art Mistress at the North London Collegiate School.

Miss MOTTRAM of the Chairman's Secretarial Staff of the London County Westminster and Parr's Bank, Ltd.

Mr. C. S. MYERS, C.B.E., M.D., F.R.S., Director of the Psychological Laboratory and Reader in Experimental Psychology at the University of Cambridge, and Director of the National Institute of Industrial Psychology.

Mr. CYRIL NORWOOD, D.Litt., Head Master of Marlborough College and Chairman of the Secondary School Examinations Council.

Mr. T. PERCY NUNN, D.Sc., Vice-Principal of the London Day Training College, and Professor of Education in the University of London.

Miss RETA OLDHAM, Head Mistress of the Streatham High School for Girls, and Chairman of the Education Committee of the Association of Head Mistresses.

Mr. J. OWEN, Staff Inspector for English, History, and Economics in the Technological Branch of the Board of Education.

Mr. T. W. PHILLIPS, Divisional Inspector of Secondary Schools under the Board of Education.

Mr. H. E. PIGGOTT, Ph.D., Head Master of the Hornsey County Secondary School.

Miss MARION E. RICHARDSON, Assistant Mistress at Dudley Girls' High School.

Professor W. ROTHENSTEIN, Principal of the Royal College of Art.

Mr. E. J. SAINSBURY, O.B.E., Head Master of the Chelsea Central (Mixed) School, and President of the Association of Teachers of Central Schools.

Mrs. M. L. SCURFIELD.

Mr. J. C. SMITH, C.B.E., H.M. Chief Inspector for the Training of Teachers in Scotland.

Mr. A. SOMERVELL, Mus.Doc., Principal Inspector of Music under the Board of Education.

Miss STANSFELD, Principal of the Bedford Physical Training College.

Mr. GODFREY H. THOMPSON, D.Sc., Ph.D., Professor of Education at Armstrong College, University of Durham.

Rev. E. M. WALKER, LL.D., Fellow and Senior Tutor of Queen's College, Oxford.

Miss E. WELCH, Assistant Mistress, Clapham High School.

Mr. D. E. WILLIAMS, Head Master of Gowerton County School, and Hon. Secretary to the Welsh County Schools Association.

Miss LILIAN E. WILSON, M.D., Medical Officer under the Board of Education.

Mrs. M. WITHIEL, late Staff Inspector of Secondary Schools under the Board of Education.

Miss J. F. WOOD, ex-President of the National Union of Teachers, and Assistant Mistress of the Manchester Central High School for Girls, Lecturer at the Training College for Continuation Teachers, Didsbury.

(ii) *Representatives of Associations and other Organisations.*

(a) *Cambridge Local Examinations and Lectures Syndicate*—
Mr. J. H. FLATHER, late Secretary for Examinations.
Rev. C. A. E. POLLOCK, one of the Syndics.

(b) *Girl Guides*—
Miss ANSON, General Secretary.

(c) *Incorporated Association of Assistant Masters in Secondary Schools*—
Mr. T. H. BOWTELL, County School, Holloway.
Mr. G. D. DUNKERLEY, Organising Secretary.
Mr. A. E. L. HUDSON, County School, Pontypridd.

(d) *London University*—
Miss ELLEN C. HIGGINS, Principal of the Royal Holloway College (representative of the Matriculation Board).
Mr. WALTER RIPMAN, Chief Inspector to the University of London (representative of the University Extension Board).

(e) *Oxford and Cambridge Schools Examination Board* –
Mr. T. G. BEDFORD, Secretary.

(B.)—LIST OF PERSONS AND ORGANISATIONS WHO SENT MEMORANDA TO THE COMMITTEE.

Mr. J. W. ADAMSON, Professor of Education, University of London.
Mr. BASIL ANDERTON, Chief Librarian of the Public Library, Newcastle-upon-Tyne.
Mr. A. B. ARCHER, Head Master of the Belle Vue Secondary School for Boys, Bradford.
ASSOCIATION OF ASSISTANT MISTRESSES in Public Secondary Schools.
Miss A. L. BAMBER, Assistant Mistress at Northampton School for Girls.
Mr. KENNETH R. BARNES, Administrator of the Royal Academy of Dramatic Art.
Mrs. HANSEN BAY, Grammar School, Wirksworth, Derbyshire.
Mr. W. M. BLAIR BELL, M.D., Professor of Obstetrics and Gynæcology, University of Liverpool.
Monsieur M. BELLIN, Directeur de l'Enseignement Secondaire au Ministère de l'Instruction Publique, Paris.
The BRITISH DRAMA LEAGUE.
Sir JOSEPH BURN, K.B.E., General Manager and Actuary of the Prudential Assurance Company.
Mr. CYRIL BURT, Psychologist to the London County Council.
CAMBRIDGE LOCAL EXAMINATIONS AND LECTURES SYNDICATE.
Mr. BARRETT CARPENTER, Principal of the Rochdale Municipal School of Art.
THE CENTRAL WELSH BOARD.
Miss CATHERINE CHISHOLM, M.D., Medical Inspector at the Manchester High School for Girls.
Mr. A. B. COLES, F.C.S., Principal of the County Technical and Secondary School, Workington.
THE COLLEGE OF PRECEPTORS.
Miss CHARLOTTE COWDROY, M.B.E., Head Mistress of Crouch End High School and College.
Mr. E. A. CRADDOCK, Assistant Master at the Northern Polytechnic Secondary School, London.
The late Miss I. A. DICKSON, O.B.E., Assistant Secretary in the Universities Branch of the Board of Education.
Mr. JOHN DRINKWATER.
Mr. FRANCIS DRTINA, Ph.D., Professor of Philosophy and Education at the Caroline University of Prague.
DURHAM UNIVERSITY—Examiners in the Matriculation Examination of the Newcastle Division.

Mr. J. J. Findlay, Ph.D., Professor of Education, University of Manchester.
Miss R. M. Fleming, University College of Wales, Aberystwyth.
Mr. H. J. Fleure, D.Sc., Professor of Geography and Anthropology, University College of Wales, Aberystwyth.
Mr. Hugh Gordon, H.M. Inspector of Elementary Schools under the Board of Education.
Rev. Cecil Grant, Head Master of St. George's School, Harpenden.
Mr. Percy M. Greenwood, Education Department, Sunderland.
Miss G. E. Hadow, formerly Tutor in English at Lady Margaret Hall, Oxford.
Mr. Frederick G. Hallett, O.B.E., Secretary to the Conjoint Medical Board.
The Incorporated Association of Head Masters.
Association of Head Mistresses.
Miss Winifred Hindshaw, of the Faculty of Education, Manchester University.
Mr. J. H. Howgate, Head Master of the Huntingdon Grammar School for Boys and Girls.
Miss Gertrude A. Ingham, Head Mistress of the Moira House School, Eastbourne.
Miss Florence E. Jones, Geography Mistress at King Edward VI. Grammar School for Girls, Birmingham.
Mr. Oliver Bolton King.
Mrs. Lilian Knowles, Litt.D., Dean of the Faculty of Economics and Reader in Modern Economic History at the University of London, Lecturer at the London School of Economics and Political Science.
Mr. John Lea, Registrar of the London University Extension Board.
Mr. Walter Leaf, Litt.D., D.Litt., Chairman of the London County Westminster and Parr's Bank, Ltd.
Mr. W. H. Leek, Head Master of Leigh Grammar School.
The Employment Committee of the London Society for Women's Service.
Miss Louisa Lumsden, LL.D.
The Mathematical Association.
Miss Frances Morehouse, M.A., University of Illinois, late Assistant Lecturer in History at the University of Manchester.
Mr. George Morris, Assistant Master at the Friends' School, Saffron Walden.
Mr. A. A. Mumford, M.D., Medical Officer of Manchester Grammar School.
The National Union of Teachers.
Northern Universities Joint Matriculation Board.
Miss Beatrice Orange, Warden of Women's University Hostel, Birmingham, and a member of the Birmingham Education Committee.
Oxford and Cambridge Schools Examination Board.
Oxford Delegacy for Local Examinations.
Mr. J. L. Paton, High Master of Manchester Grammar School.
Mr. T. R. Potbury, Secretary to the Council of University College School, London.
Mr. Fred Richards, A.R.E.
Mr. Reginald E. Roper, Physical Instructor at Bedales School, Petersfield.
Mr. Harold Rostron, Head of the Education Department of Messrs. Tootal, Broadhurst Lee Company, Ltd.
The late Mr. F. W. Sanderson, Head Master of Oundle School.
Mrs. Mary Scharlieb, C.B.E., M.D.
Mr. F. C. Shrubsall, M.D., Treasurer of the Royal Anthropological Institute.
Mr. D. C. Somervell, of Tonbridge School.
Miss Muriel H. Spalding, Vice-Principal of the Bergman-Österberg Physical Training College, Dartford.

Mr. C. E. Stansfield, Secretary to the Schools and General Education Section of the Central Education Committee of the Society of Friends.
Miss Story, Acting Head Mistress of St. Leonards School, St. Andrews.
Miss E. B. Taylor, Form Mistress at Dudley Girls' High School.
Miss Edith Turner, Head Mistress of the County Secondary School for Girls, Sydenham.
Miss S. A. Walker, Head Mistress of the Cowley Middle School for Girls, St. Helens.
Mr. J. Walton, Sub-Librarian of the Public Library, Newcastle-upon-Tyne.
Miss E. C. Ward, Head Mistress of the Brockenhurst County School for Boys and Girls.
Mr. T. P. Watson, Head Master of the Keighley Trade and Grammar School.
Miss E. M. White, Lecturer in Civics, London County Council.
Miss A. W. Whitelaw, Head Mistress of Wycombe Abbey School.
Mr. Geoffrey Whitworth, Hon. Secretary to the British Drama League.
Miss Helen Wodehouse, D.Phil., Professor of Education at Bristol University.
Miss Olive Wright, Head Mistress of Camden School for Girls, St. Pancras.

APPENDIX II.

SHORT LIST OF PUBLICATIONS BEARING ON THE CURRICULA OF SECONDARY SCHOOLS IN ENGLAND AND WALES.

I.—OFFICIAL PUBLICATIONS.

Board of Education :—

Annual Reports of the Board of Education, 1904, and onwards. London : H.M. Stationery Office. [Chapters dealing with Secondary Schools.]

Annual Reports of the Chief Medical Officer of the Board of Education. (The Reports for 1910 onwards contain sections on Medical Inspection in Secondary Schools.) *See* especially Reports for 1912 (pp. 13–17), for 1914 (pp. 198–200), for 1920 (pp. 26 and 157), and for 1921 (pp. 33 and 72). Sections 296 to 299 of the Report for 1920 deal with physical education in Secondary Schools for Girls.

Memoranda on teaching and organisation in Secondary Schools :— London : H.M. Stationery Office. 1909-1922.

Circular 561.—Geography in Secondary Schools, 1907. [*Out of print.*]
Circular 574.—Latin in Secondary Schools. 1910. [*Out of print.*]
Circular 599.—History in Secondary Schools. 1912.
Circular 705.—Language teaching in State-aided Secondary Schools in England. 1909.
Circular 719.—Teaching of Needlework (Revised). 1922.
Circular 753.—The teaching of English in Secondary Schools. 1910.
Circular 779.—Physical Training in Secondary Schools. 1911.
Circular 791.—Pronunciation of Latin. 1913.
Circular 797.—Modern Languages. 1912.
Circular 826.—Curricula of Secondary Schools. 1913. [*Out of print.*]
Circular 832.—Music in Secondary Schools. 1914.
Circular 851.—Geometry. 1914.
Circular 869.—Modern European History. 1914.

Circular 883.—Curricula of Ruralised Secondary Schools. 1914.
Circular 884.—The place and use of graphs in Mathematical Teaching. 1914.
Circular 891.—Manual Instruction in Secondary Schools for Boys. 1915.
Circular 1112.—Memorandum on Advanced Courses. 1919.

Report on Science Teaching in Public Schools represented on the Association of Public School Science Masters. By Oswald H. Latter. (Educational Pamphlets, No. 17.) London: H.M. Stationery Office. 1909.

The teaching of Latin at the Perse School, Cambridge. (Educational Experiments in Secondary Schools, No. i. Educational Pamphlets, No. 20.) London: H.M. Stationery Office. 1910.

Report of the Consultative Committee on Examinations in Secondary Schools. London: H.M. Stationery Office. 1911. (Cd. 6004.]

Interim Memorandum on the teaching of Housecraft in Girls' Secondary Schools. London: H.M. Stationery Office. 1911.

Report of the Consultative Committee on Practical Work in Secondary Schools. London: H.M. Stationery Office. 1913. [Cd. 6849.]

The teaching of Greek at the Perse School, Cambridge. (Educational Experiments in Secondary Schools, No. iii, Educational Pamphlets, No. 28.) London: H.M. Stationery Office. 1914.

The experiment in rural secondary education conducted at Knaresborough. (Educational Experiments in Secondary Schools, No. iv, Educational Pamphlets, No. 29.) London: H.M. Stationery Office. 1915. [A Co-educational Day School.]

Report of the Departmental Committee on the Organisation of Secondary Education in Wales. London: H.M. Stationery Office. 1920. [Cmd. 967.]

Secondary Schools Examinations Council. Reports of the Investigators. Subject Reports.
(First Examination.) London: H.M. Stationery Office. 1919.
(Second Examination.) London: H.M. Stationery Office. 1921.

Circular 1153. Medical Inspection and treatment of pupils in Secondary and Continuation Schools. (31st March, 1920.) London: H.M. Stationery Office. 1920.

Circular 1252.—Report on Music Teaching in Secondary Schools in England. 1922.

Education, England. Regulations for Secondary Schools, England, 1922. Draft, dated 4th August, 1922, of the Regulations for Secondary Schools, England, 1922 (excluding Wales and Monmouthshire), proposed to be made by the Board of Education under Section 44 of the Education Act, 1918 (8 and 9 Geo. 5. c. 39). (Education Act, 1918. Grant Regulations No. 10, 1922). London: H.M. Stationery Office. 1922.

Board of Education.—Welsh Department:—

Education in Wales. The experiment in rural secondary education in Welshpool County School for Boys. London: H.M. Stationery Office. 1920.

Education, Wales (including Monmouthshire). Regulations for Secondary Schools, 1922. Draft, dated 1st September, 1922, of the Regulations for Secondary Schools, Wales (including Monmouthshire), 1922, proposed to be made by the Board of Education under Section 44 of the Education Act, 1918 (8 and 9 Geo. 5. c. 39). London: H.M. Stationery Office. 1922.

CENTRAL WELSH BOARD :—
General report on Physical Training in Welsh Intermediate Schools, 1914.
Second General report on Physical Training in Welsh Intermediate Schools, 1915 and 1916. Cardiff : Roberts & Co. 1916.

CHARITY COMMISSION.—Reports of the Charity Commissioners for England and Wales from 1875–1900. [Sections relating to proceedings under the Endowed Schools Acts.] London : H.M. Stationery Office.

COMMITTEE ON MODERN LANGUAGES.—Report of the Committee appointed by the Prime Minister to inquire into the position of Modern Languages in the educational system of Great Britain. London : H.M. Stationery Office. 1918. [Cd. 9036.] (*See* especially Sections 80 to 145.)

COMMITTEE ON NATURAL SCIENCE.—Report of the Committee appointed by the Prime Minister to inquire into the position of Natural Science in the educational system of Great Britain. London : H.M. Stationery Office. 1918. [Cd. 9011.] (*See* especially pp. 8 to 29.)

COMMITTEE ON CLASSICS.—Report of the Committee appointed by the Prime Minister to inquire into the position of Classics in the Educational System of the United Kingdon. London : H.M. Stationery Office. 1921. (*See* especially Parts II., III., and VII.).

THE TEACHING OF ENGLISH IN ENGLAND.—Being the report of the Departmental Committee appointed by the President of the Board of Education to inquire into the position of English in the Educational system of England. London : H.M. Stationery Office. 1921. (*See* especially Chapter IV.)

Royal Commissions :

PUBLIC SCHOOLS COMMISSION, 1864.—Report of Her Majesty's Commissioners [Lord Clarendon, Chairman] appointed to inquire into the Revenues and Management of certain Colleges and Schools, and the Studies pursued and Instruction given therein. 4 volumes. London : H.M. Stationery Office. 1864.

SCHOOLS INQUIRY COMMISSION, 1868–69.—Report of the Commissioners [Lord Taunton, Chairman] appointed to inquire into the Education given in Schools not comprised within Her Majesty's two former Commissions, bearing date respectively 30th June in the 22nd year, and 18th July in the 25th year of Her Majesty's reign. 21 volumes. London : H.M. Stationery Office. 1868–9. [Especially Vol. I., Ch. VI., on Girls' Schools.]

SCIENTIFIC INSTRUCTION COMMISSION, 1875.—Report of the Royal Commission [Duke of Devonshire, Chairman] on Scientific Instruction and Advancement of Science. 6th report : Teaching of Science in Public and Endowed Schools. London : H.M. Stationery Office. 1875. [C. 1279.]

SECONDARY EDUCATION COMMISSION, 1895.—Report of the Commission [James Bryce, Chairman] appointed to consider what are the best methods of establishing a well-organised system of Secondary Education in England, taking into account existing deficiencies, and having regard to such local sources of revenue from Endowment or otherwise, as are available or may be made available for this purpose. 9 volumes. London : H.M. Stationery Office. 1895. [Especially Vol. I., pp. 75–78. Some considerations relating especially to the Secondary Education of Girls.]

Select Committee :

ENDOWED SCHOOLS ACTS.—Report from the Select Committee on Endowed Schools Acts; together with the proceedings of the Committee, Minutes of Evidence and Appendix. London: Henry Hansard and Son. 1886. [H.C. 191.] [*See* Evidence of Mr. Douglas C. Richmond and Mr. James Bryce.]

II.—GENERAL.

ADAMS (JOHN).—The New Teaching. London: Hodder and Stoughton. 1918.

ADAMSON (J. E.).—The Individual and the Environment. London: Longmans, Green & Co., 1921.

ARCHER (R. L.).—Secondary Education in the Nineteenth Century. Cambridge: The University Press. 1921.

ATKINS (H. G.) AND H. L. HUTTON.—The teaching of modern foreign languages in School and University. London: E. Arnold. 1920. [Ch. I. The Place of Modern Languages in the general time-table.]

BAIN (A. WATSON).—The Modern Teacher—Essays on Educational aims and methods. London: Methuen & Co. 1921.

STREATHAM COUNTY SECONDARY SCHOOL FOR GIRLS.—Dalton Plan Assignments compiled by the staff of the School, 2 volumes. London: G. Bell & Sons, 1922.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE :—

Second report of the Committee upon the present methods of teaching Chemistry. London: British Association. 1889. [Contains "Suggestions for a Course of Elementary Instruction in Physical Science. Drawn up by Professor H. E. Armstrong.]

Report on Science teaching in Secondary Schools. London: Offices of the Association. 1917.

CLASSICAL ASSOCIATION.—Report of the Curricula Committee (re-appointed October 19th, 1907) to be presented to the general meeting of the Association on January 11, 1910. Classical Association. 1910.

FINDLAY (J. J.) :—

Principles of Class Teaching. London: Macmillan & Co. 1902. [Ch. XI. The Curriculum of the Secondary School.]

The School. An introduction to the study of education. London: Williams and Norgate. 1911. [Pp. 219–30. The Secondary School Curriculum.]

HODSON (F.).—Broad lines in Science teaching. Edited by F. Hodson, Ph.D., B.Sc. With an introduction by M. E. Sadler. London: Christophers. 1909. [Ch. I. The place of Science in the School curriculum. By J. H. Badley.]

KENYON (Sir F. G.) :—

Education, scientific and humane. A Report of the Proceedings of the Council for Humanistic Studies (edited by Sir Frederic Kenyon). London: John Murray, 1917.

Education, Secondary and University. A Report of Conferences between the Council for Humanistic Studies and the Conjoint Board of Scientific Societies. London: John Murray, 1919.

LEATHES (Sir STANLEY).—What is Education? London: G. Bell and Sons, 1913. (Chapters III., IV., and VI.)

LONDON COUNTY COUNCIL.—Report on the Teaching of French in the Secondary Schools of London. (Ordered by the Education Committee to be published, 21st November, 1917). London: P. S. King and Son. 1917.

MACKAIL (J. W.).—The Case for Latin in Secondary Schools. London: John Murray, 1922.

PARKHURST (HELEN).—Education on the Dalton Plan. London: G. Bell and Sons, 1922.

RICHMOND (KENNETH).—The Curriculum. London: Constable & Co. 1919.

SADLER (Sir M. E.):—

Report on Secondary Education in Liverpool. (City of Liverpool Education Committee.) London: Eyre & Spottiswoode, 1904.

Report on Secondary and Higher Education in Hampshire (Administrative County of Southampton). Portsmouth: Holbrook and Son, 1904.

Report on Secondary and Technical Education in Huddersfield (County Borough of Huddersfield Education Committee). London: Eyre & Spottiswoode, 1904.

Report on Secondary and Higher Education in Essex (Administrative County of Essex Education Committee). Chelmsford: J. H. Nicholas, 1906.

SLEIGHT (W. G.).—The Organisation and Curricula of Schools. London: Edward Arnold. 1920. (*See* Chapters VII. and VIII.)

TEACHERS' GUILD OF GREAT BRITAIN AND IRELAND.—Education Reform, being the report of the Education Reform Council. London: P. S. King and Son. 1917. [Curricula and Methods in Secondary Schools. Report of Committee D., pp. 67 to 96.]

This report should be compared with the report of the Scottish Education Reform Committee:—

Reform in Scottish Education. Being the Report of the Scottish Education Reform Committee. Edinburgh: Scottish Education Reform Committee. 1917.

WOODS (ALICE).—Educational Experiments in England. London: Methuen & Co. 1920. [Ch. IV. Changes of Curriculum in Rugby, Marlborough, Christ's Hospital, Co-educational and other Schools.]

III.—BOYS' SCHOOLS.

ALLBUTT (Sir T. CLIFFORD).—Science in the School. Being three letters to the Literary Supplement of "The Times." Cambridge: W. Heffer and Sons. 1917.

BENSON (A. C.).—Cambridge Essays on Education. Edited by A. C. Benson. With an introduction by the Right Hon. Viscount Bryce, O.M. Cambridge: University Press. 1917.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE:—

Report of the 73rd meeting of the British Association for the Advancement of Science held at Southport in September 1903. London: J. Murray. 1904.

[Contains papers on School Curricula with special reference to Commercial Education. By J. L. Paton and W. C. Fletcher.]

Report of the 77th meeting of the British Association for the Advancement of Science. Leicester, 31st July–7th August, 1907. London: John Murray. 1908.

[Contains Report of the Committee appointed to consider and to advise as to the Curricula of Secondary Schools.]

CHICHESTER (A.).—Educational reform and the curricula of Secondary Schools. (Presidential address at the 22nd Annual Conference of Catholic Colleges upon Secondary Education, held at Wimbledon College, 4th June, 1918.) London: Cole & Co. 1918.

GOLLANCZ (VICTOR) and DAVID SOMERVELL.—The School and the World. (Ch. X. Curriculum.) London: Chapman and Hall. 1919.

HEADMASTERS' CONFERENCE.—Report of the Special Meeting of members in favour of the recommendations of the Curriculum Committee held at the College of Preceptors, London, W.C., on Thursday, 10th March, 1910. London: Waterlow and Sons. 1910.

JOINT COMMITTEE OF THE MATHEMATICAL ASSOCIATION AND THE ASSOCIATION OF PUBLIC SCHOOL SCIENCE MASTERS.—The correlation of mathematical and science teaching. Report of a Joint Committee of the Mathematical Association and the Association of Public School Science Masters. London: George Bell and Sons. 1909.

LANKESTER (Sir RAY).—Natural Science and the Classical System in Education. Essays new and old. Edited for the Committee on the Neglect of Science. London: W. Heinemann. 1918.

LIVINGSTONE (R. W.).—A Defence of Classical Education. London: Macmillan and Co. 1916.

NORWOOD (CYRIL) and ARTHUR H. HOPE.—The Higher Education of Boys in England. London: John Murray. 1909.

PUBLIC SCHOOL REFORM.—Public School Reform. Report of Proceedings at the reception of a deputation by a Committee of the Head Masters of the Public Schools, held in London at the Great Central Hotel, on Thursday, 6th July 1916. 1916.

RUGBY SCHOOL:—

Notes on the teaching of English in the Lower Middles: November, 1913. Rugby: G. E. Over. 1913.

Educational Course, February, 1919. Rugby: The School. 1919.

SOMERVELL (D. B.).—The Future of Public School Education. Oxford: University Press. 1918.

THE PUBLIC SCHOOLS FROM WITHIN.—A collection of Essays on Public School Education written chiefly by Schoolmasters. London: Sampson Low, Marston & Co. 1906.

IV.—GIRLS' SCHOOLS.

ASSOCIATION OF HEAD MISTRESSES:—

Memorandum on the Board of Education's regulations for Secondary Schools. 1904.

Proceedings of the Education Sub-Committee of the Executive Committee, 1918–19. Preston: Guardian Printing Works. 1919.

(Contains papers on the education of girls after 16 and on Æsthetics in Girls' Education.)

Report of the 48th Annual Conference held in London, Friday and Saturday, June 9th–10th, 1922. (Contained in the "Educational Times," July, 1922.)

[The Balance of the Curriculum. By Miss Gwatkin.

The Classics as the foundation of the Humanities. By Miss Brock.

Æsthetics in the School Curriculum. By Miss Ainslie.

The Humanities. Divinity. By Miss Haig Brown.]

BEALE (DOROTHEA), LUCY H. M. SOULSBY and JANE FRANCES DOVE.—Work and Play in Girls' Schools. London: Longmans, Green & Co. 1898.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—Report of the 73rd Meeting of the British Association for the Advancement of Science held at Southport in September, 1903. London: J. Murray. 1904.

[Contains papers on Curricula of girls' schools by Miss S. A. Burstall and Professor H. E. Armstrong.]

BURSTALL(SARA A.).—English High Schools for Girls. Their aims, organisation and management. London: Longmans, Green & Co. 1907.

BURSTALL (SARA A.) and M. A. DOUGLAS.—Public Schools for Girls. A series of papers on their history, aims and schemes of study. By members of the Association of Head Mistresses. London: Longmans, Green & Co. 1911.

RAIKES (ELIZABETH).—Dorothea Beale of Cheltenham. London: Constable & Co. 1908.

RIDLEY (ANNIE E.).—Frances Mary Buss and her work for Education. London. 1895.

STUART (JANET ERSKINE).—The Education of Catholic Girls. London: Longmans, Green & Co. 1911.

ZIMMERN (ALICE).—The renaissance of Girls' Education in England. A record of fifty years' progress. London: A. D. Innes & Co. 1898.

V.—PHYSICAL TRAINING AND HYGIENE.

BURSTALL (SARA A.):—

Corpus Sanum. [Chapter in "English High Schools for Girls. London: Longmans, Green & Co. 1907.]

Physical Training. [Chapter in "Public Schools for Girls." Edited by Sara A. Burstall and M. A. Douglas. London: Longmans, Green & Co. 1911.]

CAMPBELL (G. M.) and MURIEL H. SPALDING.—Physical Training. [Chapter in "The New Teaching." Edited by John Adams. London: Hodder and Stoughton. 1918.]

COLLEGE OF PRECEPTORS.—Report of a Joint Committee appointed by the College of Preceptors in October, 1921, on the Physical Education of Girls, printed in the "Educational Times" for September, 1922.

DYMOND (J. A. G.).—Scouting and the Adolescent, with special reference to Secondary Schools. Manchester: University Press. 1920.

MALIM (F. B.).—Athletics. [Chapter in "Cambridge Essays on Education." Edited by A. C. Benson. Cambridge: University Press. 1917.]

NORWOOD (C.) and A. H. HOPE.—The Higher Education of Boys in England. [Chapters on Games; The Officers' Training Corps; Boys and their Health.] London: John Murray. 1909.

PUBLIC SCHOOLS FROM WITHIN.—The Public Schools from Within. [Section IV.: Physical Culture.] London: Sampson Low, Marston & Co. 1906.

SIMPSON (J. H.).—The Public Schools and Athleticism. London: "Educational Times," 23, Southampton Street, W.C.1., 1922.

APPENDIX III.

DIGEST OF CERTAIN POINTS IN THE EVIDENCE RELATING TO CO-EDUCATIONAL DAY SCHOOLS ("MIXED SECONDARY SCHOOLS").

The Day Secondary School for boys and girls seems, on a first view, to afford exceptionally favourable ground for instituting a real comparison between boys and girls with a view to deciding the question as to whether further differentiation should be introduced into the curriculum. We have before us a large body of evidence from head masters and assistant masters and mistresses in Co-educational Day Schools. The crucial problem of co-education does not fall directly within our province, but, as it is impossible to consider one educational question without at the same time raising several other important points implicitly, we consider it advisable to summarise the evidence regarding the advantages and disadvantages of Co-educational Day Schools, especially as regards differentiation of curriculum. It should be pointed out that nearly all the Co-educational Secondary Schools in England and Wales are under the control of head masters.[1] It is interesting to note that,

(1) We understand that at present there are only about three head mistresses of Co-educational Day Schools which are in receipt of grant under the Board's Regulations for Secondary Schools.

though co-education was advocated by some of our men witnesses, only two women witnesses appeared to be emphatically in favour of the system. Co-educational Schools were advocated by a number of men witnesses,

(1) for social and economic reasons; and

(2) on the ground that both boys and girls, but especially girls, benefited from co-education.

(1) *Social and Economic Considerations.*

Several head masters of Co-educational Schools held that, as education was the preparation for the full life of a citizen, boys and girls should be prepared for common citizenship in surroundings common to both. There was no natural justification for a system of education which aimed at training boys to live the life of men only and girls to live the life of women only. Both sexes should be trained to live the life of fellowship, and each sex brought its own peculiar gifts. A well-conducted Co-educational Secondary School would afford natural opportunities for the healthy interplay of the qualities of both sexes, so that, when the pupils mixed in the world after leaving school, there would be none of the danger which came from novelty or lack of practice of self-control in the actual presence of the opposite sex gained in the daily routine of school life. It was a simple matter to make adequate arrangements for boys and girls to have separate work in subjects likely to be of peculiar value to them. If, on the other hand, the sexes were educated in entirely separate schools, the loss to the individual sex in all that could come only from mutual association greatly outweighed the advantages supposed to accrue from segregation in school days. It should be mentioned in this connection that Dr. George MacLean, late President of the University of Iowa, in the light of his long experience of co-education in the Middle Western States, said that at one time he had no belief in co-education, but that his life-work had reluctantly converted him. He now advocated co-education throughout the Elementary and University courses. He thought, however, that the sexes should be segregated during the period of adolescence.

(2) *Mutual Benefit to Boys and Girls.*

The head masters of several Co-educational Schools were of opinion that girls educated in such Schools would, as a rule, have greater powers of observation than girls educated in Girls' Schools, because of their association with boys. The head mistress of a Co-educational Day School told us that she found the girls in such schools keener on their school, more broadminded generally, and less inclined to fuss over trifles. In this connection it should be pointed out that, in discussing the teaching of Mathematics, Physics and History, several witnesses suggested it would be an advantage if these subjects were sometimes taught to girls by men teachers. We have also some evidence indicating that the average mathematical attainments of girls in Co-educational Secondary Schools are frequently on a rather higher level than in most Girls' Schools. Several women who had taught in Co-educational Schools thought the lessons there tended to be brighter and the contributions of pupils more spontaneous and varied than in a Girls' School. The girls gained by the exchange of ideas and experience with the boys, whose life was frequently broader, fuller, and more adventurous. For example, in good Co-educational Schools the girls took examinations in their stride like the boys, and did not tend to strain beyond the limit of their power, as they often appeared to do in Girls' Schools. On the other hand, girls tended to work more steadily than boys, and this put the boys on their mettle. They thought that both boys and girls gained much by co-operation, and that the problem of the curriculum in Co-educational Schools was not different in kind, and not very different in degree, from that in all schools.

A head master had found that differences, such as the superiority of the boy in Arithmetic and of the girl in English Subjects, tended to disappear in Co-educational Schools when the pupils had been taught together for a few terms.

Several head masters of Co-educational Day Schools, though believing in the benefits which accrued to both sexes from co-education, were strongly of opinion that some difference of treatment was necessary, especially for pupils over 15 years of age. For example, girls in the Upper Forms should do less Mathematics and Physical Science. In such Forms the girls could, as a rule, take Hygiene and General Elementary Science, while the boys could study Mechanics and Electricity.

Criticism of Co-educational Schools, which came largely from the women witnesses, was on the following lines :—

(i) *Relations between Boys and Girls.*

The Principal of a large Training College for Women, who had among her students a number of girls educated in Day Schools for Boys and Girls, thought that the difficulties presented by Co-educational Schools were not so much intellectual as social and administrative. Even where the girls outnumbered the boys, the latter still seemed to run the school. She had noticed that girls from such schools had not the independent and critical outlook and the power of initiative which were usually present in pupils from really good Girls' Schools. She had also observed in such girls a certain reluctance to accept greater responsibility. Another woman witness stated that she had never found a Co-educational School in which the needs of the girls received full consideration. The curriculum was arranged for the boys, the school was run in their interests, and, in general, they acted as a depressing element on the girls.

A woman witness who had done much inspecting and organising work for Local Education Authorities, thought that in the early stages neither boys nor girls lost anything from being taught together, and that from 16 onwards the sexes might, without much difficulty, be taught together. Nevertheless, the work of girls in Girls' Schools usually reached a higher standard than that of girls in Co-educational Schools. She had noticed that in mixed classes the girls did not always answer so readily. The boys, on the other hand, were less shy. On the other hand, it should be mentioned that the head masters of several large Co-educational Schools had found that the girls took their full share in the school life and were well able to hold their own against the boys. On the other hand, several witnesses were of opinion that, even if at present boys took too much share in the corporate life of some Co-educational Schools, this tendency was rapidly disappearing. One woman witness, who had taught for many years in Co-educational Schools, had observed that girls were more public-spirited than boys and took more part in the school life.

(ii) *The Danger of overpressing Girls and not pushing Boys forward sufficiently.*

Several witnesses, in the light of extensive experience of Co-educational Schools, regarded them as an economic necessity in smaller centres of population, but thought that separate schools were preferable, where possible. From the standpoint of teaching power, a composite staff of men and women teachers had undoubted advantages, but there was a danger of overpressing the girls or of failing to push the boys to the full extent of their capacity.

One head master had found that, though some girls were capable of working with the best boys, he could not, as a rule, give boys the amount of work they could do and would be the better for doing on account of the physical difficulties of girls working with them. On that ground he would prefer to segregate the sexes after the age of 14,

mainly on account of physical reasons. He added, however, that possibly the circumstances in his school were peculiar, as many of the boys and girls had to come from long distances. Other witnesses were disposed to think that in smaller Co-educational Day Schools, where it was difficult to classify the less-gifted pupils by means of a system of parallel Forms, there might be a real danger of overpressing the girls.

(iii) *The relative Failure to meet the Individual Needs of some Girls.*

One witness of wide experience thought that Co-educational Schools had in some respects distinct advantages, but, on the whole, he preferred separate schools for either sex, largely on the ground that the special need of some girls for individual treatment could be more satisfactorily met in schools for girl pupils only. A woman witness who had had extensive experience both of Girls' Schools and Co-educational Schools thought that language teaching probably reached a higher standard in Girls' Schools, though the mathematical work was probably better in Co-educational Schools.

(iv) *Staffing Difficulties.*

There appeared to be general agreement that it was much more difficult to teach boys and girls together than to teach either sex separately. To teach them together required a wider outlook on life and psychological insight into the temperament of either sex, which made great demands on the intelligence, sympathy, and tact of the teacher. For example, the ordinary master often employed with success a certain grim humour in dealing with boys; yet it was obvious that such methods could not well be used in a mixed class. So, too, stern disciplinary methods which were well adapted for boys were obviously unsuitable for girls. On the other hand, many women teachers would probably find it difficult to teach boys of 15 or 16. There was unanimous agreement in regard to the need for very careful selection of the staffs of Co-educational Schools. Moreover, the mixed class probably increased the difficulty of presenting matter to different types of mind, as it seemed to be generally agreed that the manner of approaching and apprehending certain subjects, such as Mathematics and History, differed with sex. Heads of Co-educational Schools (who are, with rare exceptions, men) would seldom delegate to their senior mistresses the right to communicate with or to interview the parents of girls, when in her opinion it is desirable. Thus everything hinged on right relations between the head master and the senior assistant mistress.[1] Another difficulty of school life in Co-educational Day Schools is described by one woman witness as follows :—

> "It is well known that girls may develop sentimental attachments and that those are sometimes for a particular teacher. The friends of these girls are quite aware of what is happening. In a Girls' School the attachment can only be for a mistress, and all the classmates are girls. There is a fairly simple situation. The mistress—assuming that she is a healthy-minded woman, and if not she ought to be sent away—dislikes but understands the phase through which the girl is passing; she tries to turn it to hard work, and, what is most important, she can and does discuss the case with the Head Mistress without any embarrassment. Further, it is an easy matter for the Head Mistress to talk frankly about the evils of sentimentality to a large group of girls and mistresses. But in a mixed school complications arise.
>
> "First, the attachment may be for a master.

(1) *cf. Report of Board of Education* for 1905–6, p .58 : "In each such mixed or dual Secondary School the status and powers of the Senior Mistress should be defined and recognised."

"Secondly, the boys as well as the girls may be aware of it. The situation is much more delicate and more difficult to tackle. To ignore it is not very satisfactory. To discuss it with either the master of the individual girl is much more difficult; and, in addition, the senior mistress has not the same weight as the head mistress of a girls' school. To speak to a group of mixed pupils is surely not desirable, while to isolate the girls for a special talk by the senior mistress may or may not be successful. Any discussion on the point between the Head and the Senior Mistress is difficult.

"In particular, the relation of the Head (whether man or woman) to the second in command (presumably of the opposite sex to the Head) is a matter for the most careful adjustment. The ideal arrangement would seem to be for a man and his wife to fill these positions. It is recognised that a woman must watch over certain phases of the girls' life, and it is a debatable point as to whether her functions and authority should be left to mutual understanding between her and the head master, or whether they should be defined and safeguarded by the direct authority of the governors. The former is obviously the more satisfactory relationship between two people of sympathy and tact, but it must not be forgotten that, when these conditions fail, either the girls' interests must be sacrificed (assuming the woman to have judged correctly) and the position of the senior mistress be weakened, or the senior mistress must resort to her only means of escape from surrender, viz., resignation. Few able Principals would care to feel that the second in command held a position in some respects independent of their own—and this is the inevitable result of any definition of responsibility for the second in command, *e.g.*, the right of a Senior Mistress to communicate with or interview the parents of girls when in her opinion it is desirable. On the other hand, women undertaking such work are naturally anxious to have some guarantee that their powers are co-extensive with their responsibilities."

APPENDIX IV.

ON THE POSITION OF MUSIC AND ART IN SCHOOL EXAMINATIONS.

A.—Note on the Present Position of Drawing (Art) and Music in Approved First (School Certificate) Examinations.

In the examinations of the Oxford and Cambridge Schools Examination Board, and of the University of London, Drawing and Music are the only subjects outside the three main groups. In the examination of the Central Welsh Board they constitute Group IV., Domestic and Business subjects composing Group V. In the remaining five examinations they appear with Domestic and Business subjects in Group IV.

Oxford and Cambridge Schools Examination Board.

Group IV. is optional, and the excellence of a candidate's work in it will not exempt him from the necessity of reaching a minimum standard in each of the Groups I., II. and III. His work in Group IV., however, will be considered in conjunction with his work in the other three Groups in estimating his claim to a Certificate. (Regulations for 1923, p. 47, §3.)

Oxford Local Examinations Delegacy.

Slight deficiency in one of the Groups I., II. and III. may be compensated by substantial work in two other Groups (of which Group IV. may be one). (Regulations for 1923, p. 12, §1.)

Cambridge Local Examinations Syndicate.

In assessing the satisfactory standard required from the candidate in the Examination as a whole, the Syndicate will take account of all subjects (including those in Group IV.) in which the candidate passes with credit. (Regulations for 1923, p. 14, §1 (*b*).)

Northern Universities Joint Matriculation Board.

Not more than one of the five subjects, in which a satisfactory standard is required for the Certificate, may be taken from Group IV. (Regulations for 1923, p. 7, §4 (i) (*b*).)

University of London.

For the Certificate it is necessary to reach a required standard in six subjects, of which either Music or Drawing may be one. (Regulations for 1923, p. 12, §2.)

University of Durham.

Not more than one of the five subjects in which a pass is required for the Certificate may be taken from Group IV. (D). (Regulations for 1923, p. 1, §4 (2).)

University of Bristol.

A pass in one subject of Group IV. may be counted with passes in four subjects of Groups I., II. and III. . . . for the award of the Certificate. (Regulations for 1923, p. 11, §1 (12) (*b*).)

Central Welsh Board.

For the Certificate a candidate's work in all Groups, including Groups IV. and V., will be taken into account provided a certain minimum standard is attained in Groups I., II. and III. (Regulations for 1923, p. 8, §XVII (*c*).

B.—Draft Syllabus and Specimen Questions for Examinations in Music.

(Drafted by Sir W. H. Hadow, C.B.E., D.Mus., and Arthur Somervell, Mus. Doc.).

(i) *First School Examination (School Certificate Examination)—Draft Syllabus.*

In order to pass, candidates must satisfy the Examiners in (I). In order to obtain distinction they must satisfy the Examiners in (I) and (II).

I.

(a) *Aural Training.*

Candidates will be required :—

(1) To sing a simple melody at sight.

(2) To write from dictation a 4-bar phrase.

(3) To write down in any key, specified by the Examiners, one of 12 hymn tunes the names of which have been announced in the syllabus for the year.

(4) To recognise simple changes of key in passages played by the Examiners : the answers to be written down.

(5) To recognise common chords, inversions and cadences.

(6) To translate two examples of the rhythm of poetry into corresponding musical rhythm—the passages to be written on one note.

N.B.—The sight-singing test will be taken separately from the rest of the examination. The other parts of the aural examination will be given at the beginning of the paper.

(*b*) Elementary Harmony (common chord, dominant 7th and their inversions) : either (1) the harmonisation in three or four parts of a given melody, or (2) the supplying of a melody above an unfigured bass.

(*c*) Structure of melodies : either (1) the analysis of one or more given melodies, or (2) the composition of a melody to a given stanza of verse.

(*d*) General elementary knowledge of the outline of musical history.

(*e*) Test quotations.

Candidates will be asked to identify four out of 10 or 12 well-known melodies or phrases.

(*f*) Study of a set work (Elementary).

E.g., a suite of Bach or an early Sonata of Beethoven, or a selection of pieces by Schumann or Chopin. The set pieces should not require a knowledge of any instrument other than the piano.

The above is designed as a syllabus for a three-hour paper, of which the aural training apart from sight-singing should occupy about half-an-hour or forty minutes.

II.

Candidates for distinction are required to offer one of the following :— Pianoforte, Violin, Singing or Composition.

Candidates who offer pianoforte, violin, or singing will be allowed to make their own selections from a prescribed list of composers. They will also be tested in sight-reading.

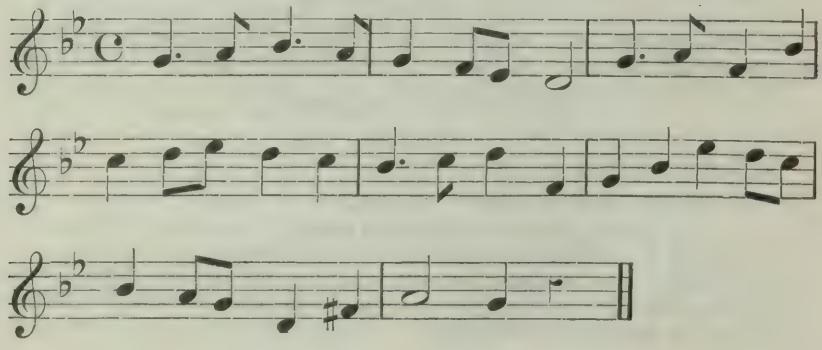
Compositions may be either vocal or instrumental, and whether long or short will be expected to show some individuality and some sense of musical structure.

(ii) *First School Examination (School Certificate Examination)—Specimen Questions.*

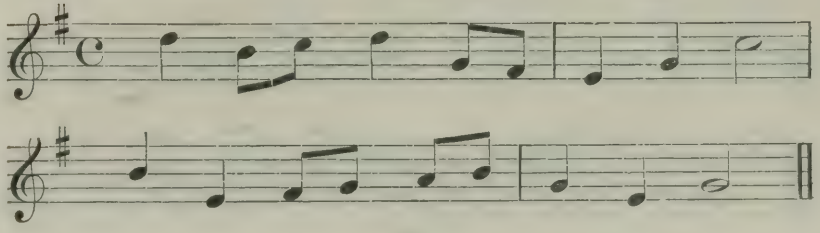
PAPER I.

(*a*) *Aural Training.*

(1) Score for sight-reading :—

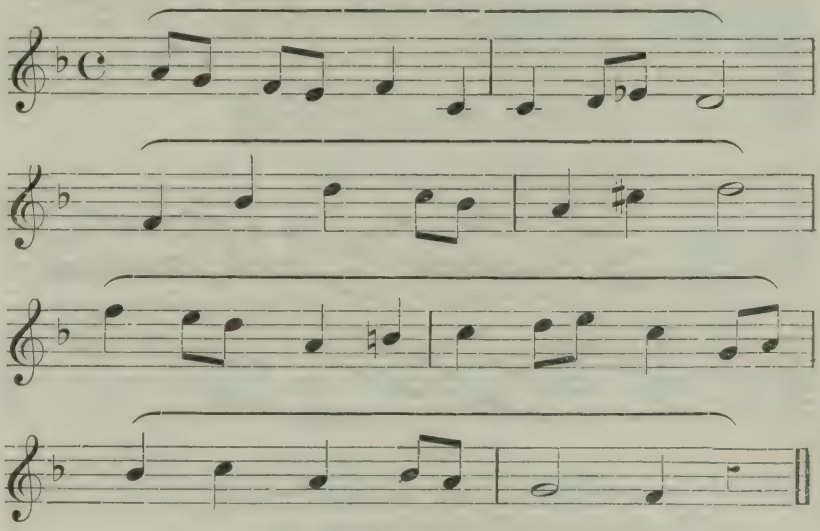


(2) Score for dictation :—

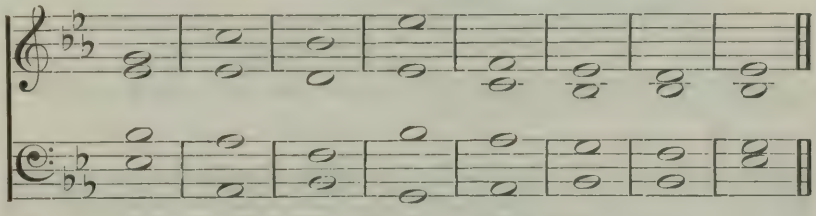


(3) Write out " French " in the Key of D.

(4) Write down the changes that occur at the end of each two-bar phrases in the following (the passage to be played 3 times and the key to be given) :—



(5) Write down the name of the following chords (Tonic, Dominant, &c.), and inversions. The passage to be played slowly three times.

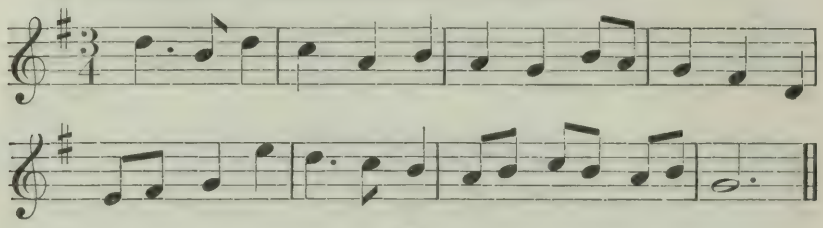


(6) Translate the rhythm of the following lines of poetry into corresponding musical rhythm :—

(i) It is time, it is time oh passionate heart, said I.

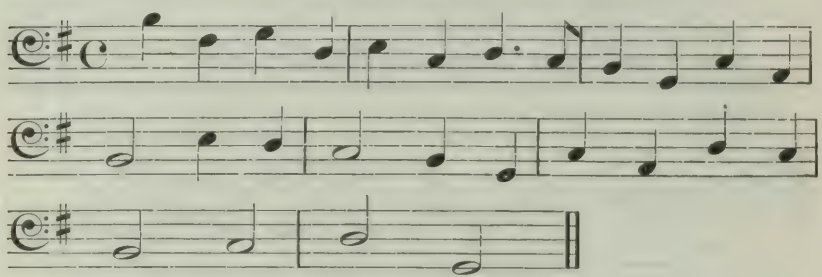
(ii) O what a plague is love, I cannot bear it.

(*b*) Harmonise the following melody in four parts :—

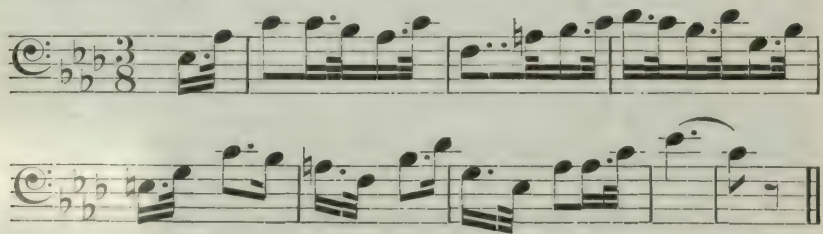


or

Write a melody above the following bass. Use passing notes.



(*c*)—(i) Analyse the following melody :—



or

(ii) Write a melody for the following verse :—

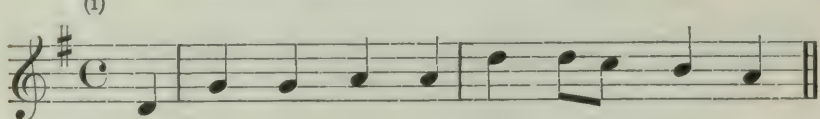
How sweet is the Shepherd's sweet lot,
From the morn to the evening he strays :
He shall follow his sheep all the day,
And his tongue shall be filled with praise.

(*d*) Give a short account of one of the following :—

(i) The English Madrigal writers.
(ii) The growth of the orchestra from Bach to Beethoven.
(iii) The " Romantic School " of the 19th century.

(*e*) Identify five of the following, giving the name of the composer or the name or first line of the song.

(i)



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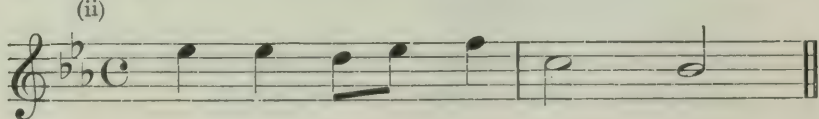

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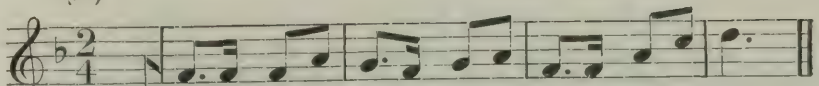

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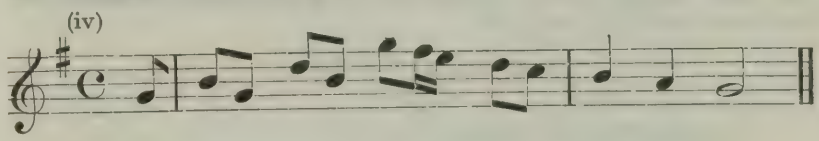

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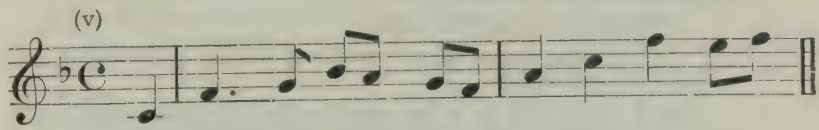

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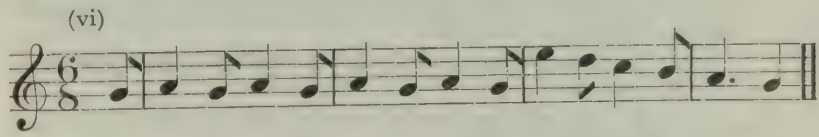

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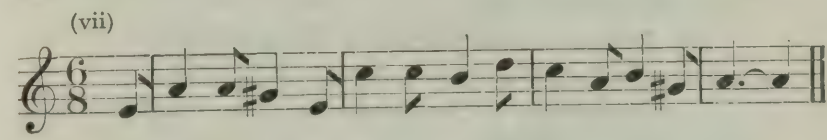
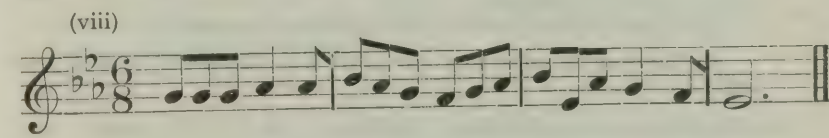


(viii)



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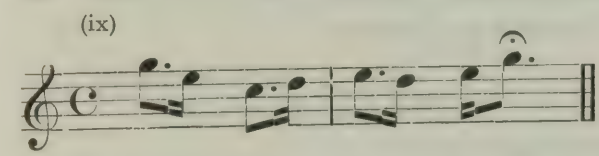

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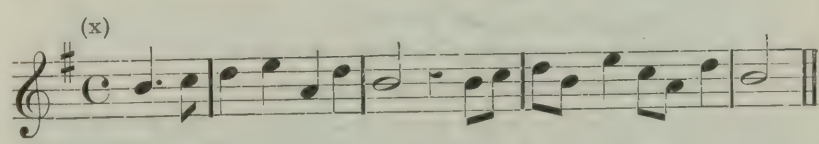


(*f*) Bach : French Suite in G Major.

(i) What is meant by a Suite ? Of what numbers does it usually consist ? Mention any additions or exceptions.

(ii) For what keyed instruments did Bach write his chamber music ? How do they differ from the piano ?

(iii) Why are these Suites called " French " ?

(iv) Contrast the structure of the Allemand with that of the Gavotte.

(v) What is a Louve and how does it differ from other dance forms ?

(vi) Write a short structural analysis of the Gigue.

(Three or four of these to be set.)

(iii) *Higher Certificate Examination—Draft Syllabus.*

In order to pass in Music as a subsidiary subject, candidates will be required to satisfy the Examiners in (I):—as a principal subject in (I) and (II). Candidates for distinction will be required to satisfy the Examiners in (I), (II) and (III).

I.

(*a*) *Aural Training.*

Candidates will be required:—

(1) To sing a melody at sight.

(2) To write down from dictation a melody and bass of not more than eight bars.

(3) To write out in a key specified by the Examiners one of 12 folk or national songs the names of which have been announced in the Syllabus for the year.

(4) To write down examples of musical rhythms, specified by the Examiners.

(5) To recognise and write down chords and their inversions up to the dominant 7th.

(6) To explain briefly the uses of the figured bass.

(*b*) *Harmony*, including auxiliary notes and passing notes—

(1) Harmonisation of a melody for four voices, or with pianoforte accompaniment.

(2) Harmonisation of a melody for string quartet.

(3) The supplying of a violin part to an unfigured bass on the 'cello.

(*c*) *Test Quotations* (as in School Certificate, but of wider range).

(*d*) Questions in General Musical History.

II.

(*a*) *Musical History* (Special period).

(1) The age of Bach and Handel.

(2) The Viennese period, excluding Schubert.

(3) Schubert to the death of Schumann.

Questions will be set relating the musical history to the general history of the period. The periods will be set in annual rotation. Candidates will be given a choice of questions and will be allowed to treat one question fully after the manner of an essay.

(*b*) Either:—

(1) The criticism of two out of a selected list of melodies, or

(2) Free composition of a melody in four parts, the opening phrase and the cadence being given.

(*c*) Study of a set work, selected from classical concerted Chamber music, *e.g.*,—

Mozart's string quintet in G Minor.
A pianoforte trio or quartet of Beethoven.
Schubert's piano trio in B flat or quartet in A Minor, or some other work of corresponding length and difficulty.

III.

Candidates for distinction will be required to offer one of the following : Pianoforte, Violin, Singing, Composition.

Syllabus of Performance.

Pianoforte.

(*a*) One movement of Bach or one movement of Beethoven.
(*b*) A piece selected by the candidate.
(*c*) Sight reading.

Violin.

(*a*) One movement of Bach or Mozart or Beethoven.
(*b*) A piece selected by the candidate.
(*c*) Sight reading.

Singing.

(*a*) Two songs by Handel or Bach, and Schubert or Schumann.
(*b*) A song selected by the candidate.
(*c*) Sight reading.

Composition.

As in School Certificate : higher standard required.

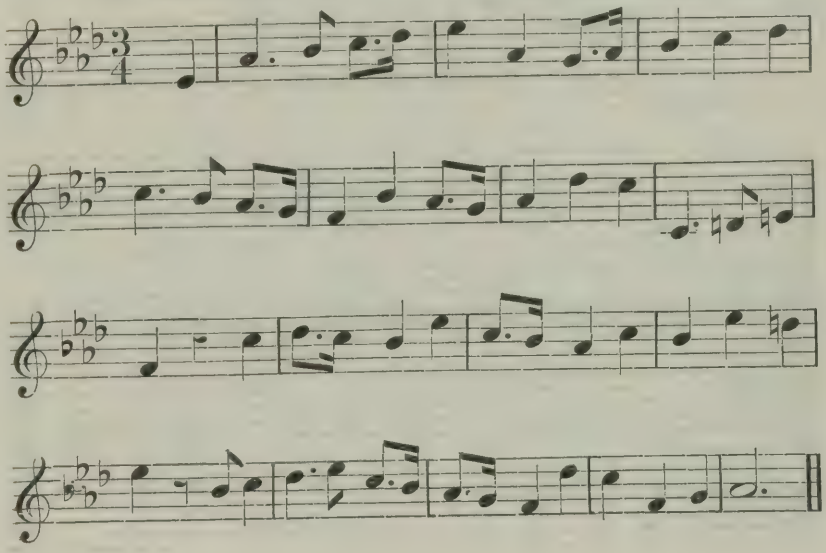
Candidates should be encouraged to offer concerted pieces for two or more instruments or voices.

(iv) Higher Certificate Examination—Specimen Questions.

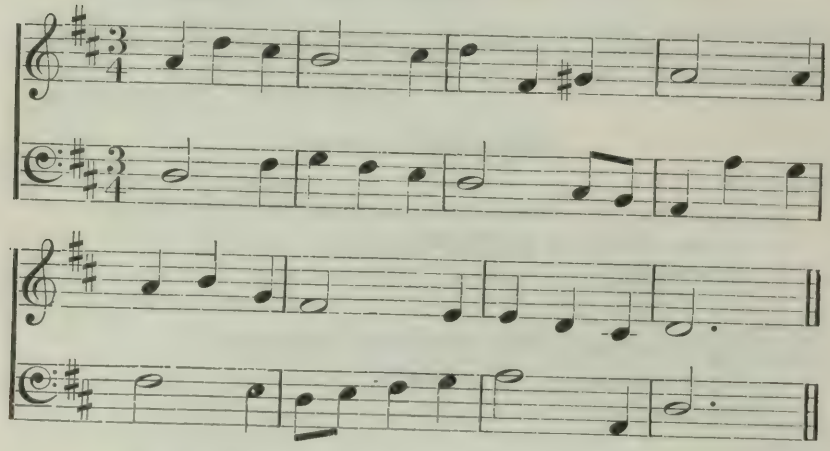
Paper I.

(*a*) *Aural Training.*

(1) Sight reading :—

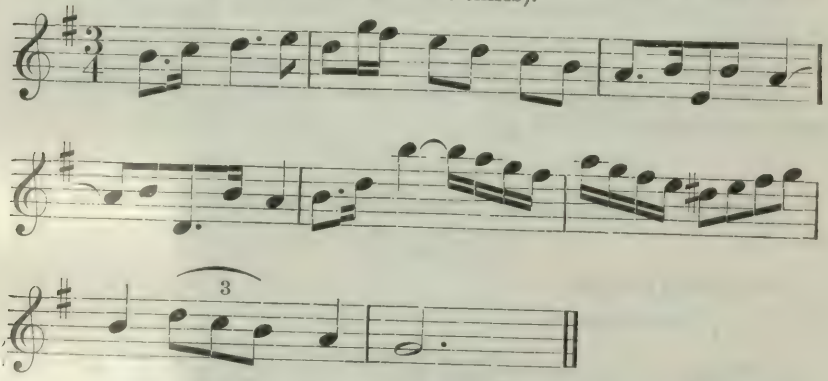


(2) Score for dictation (played by the Examiner or Assistant three times).

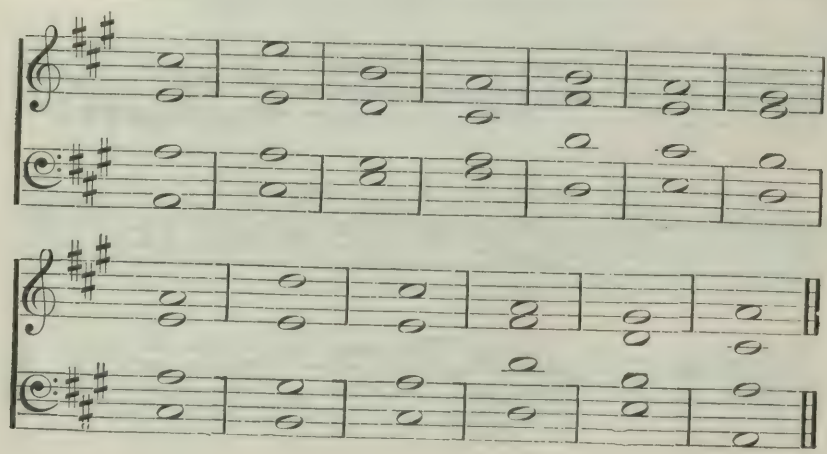


(3) Write out "The Seeds of Love" in the Key of A.

(4) Write on a single line the rhythm of the following (played by the Examiner or his assistant three times).



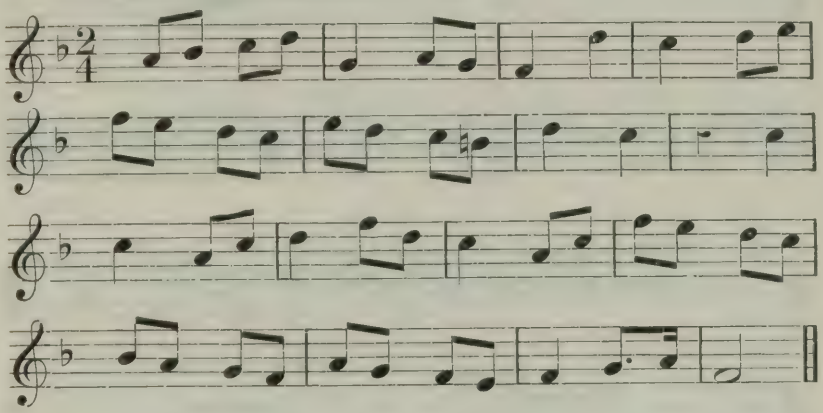
(5) Write down the following chords (played slowly by the Examiner).



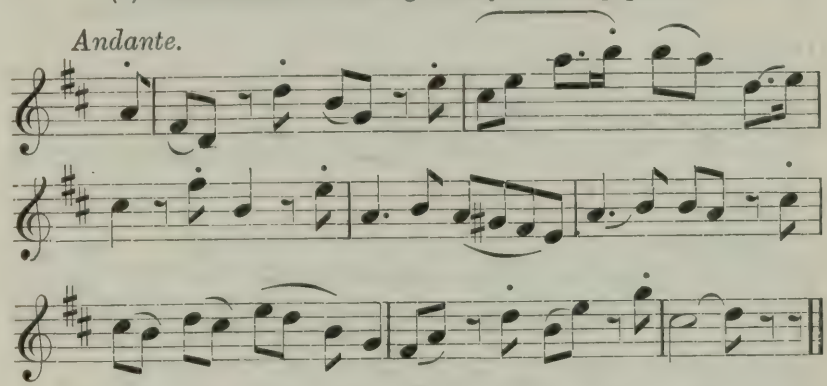
(6) Write a bass to "God save the King": figure it so as to make good 4-part harmony, and explain the use of the figures.

(*b*) *Harmony.*

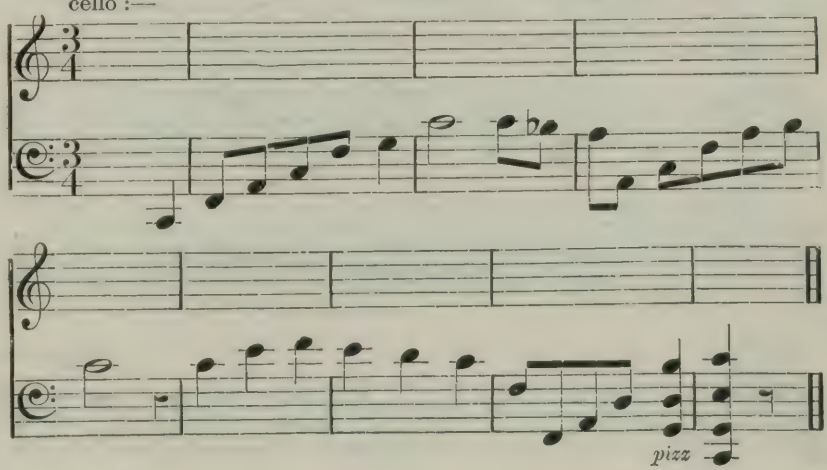
(1) Harmonise the following melody for four voices; *or* write a pianoforte accompaniment to it.



(2) Harmonise the following melody for string quartet :—

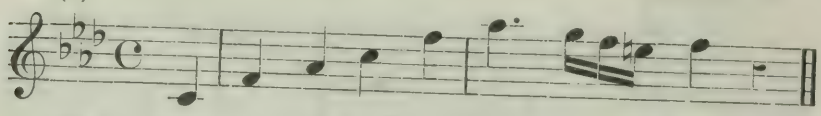


(3) Add a free violin part to the following bass, played on a cello :—



(*c*) Identify five of the following quotations. Give the name of the composer and the work from which it is taken :—

(1)



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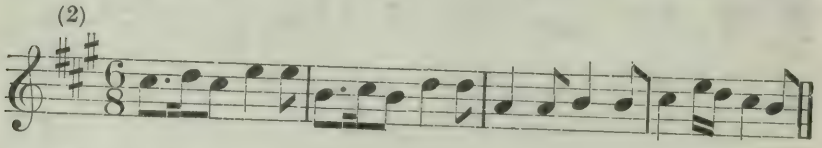

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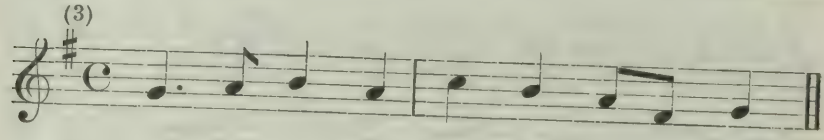

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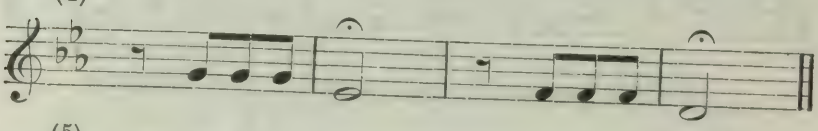
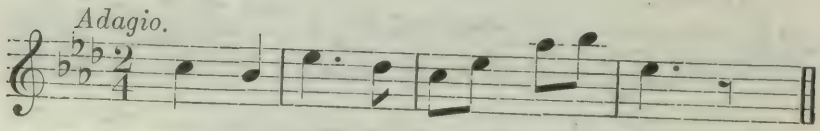


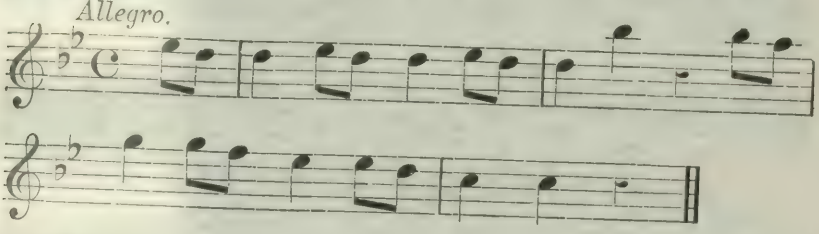
(5)

Adagio.



(6)

Allegro.



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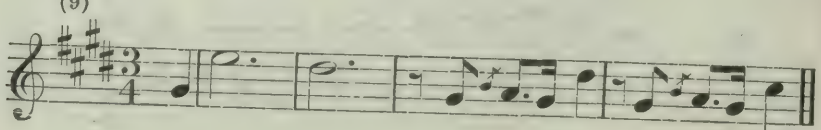

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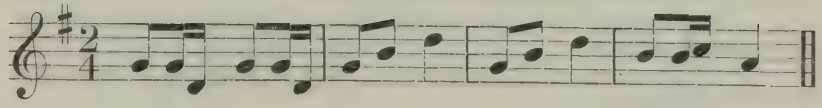
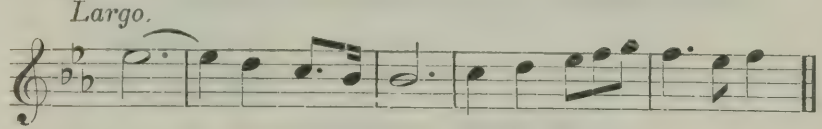


(11)

Largo.



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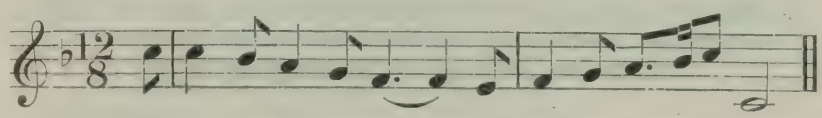

(*d*)—(1) What is the difference between mode and scale? Mention some of the characteristics of modal composition.

(2) What influence was exercised on the course of Musical History by either (*a*) C. P. E. Bach or (*b*) Gluck?

(3) Trace briefly the history of Opera from Weber to Wagner.

(4) Illustrate the way in which the development of composition has been aided by improvements in the construction and use of instruments.

II.

(*a*) The Viennese Period.

(1) Illustrate the effects of patronage on the music of the late 18th century.

(2) To what extent did Haydn and Mozart influence each other?

(3) In what sense was Beethoven a revolutionary?

(4) Write an account of any composition, of this period, which has given you special pleasure.

(5) Compare the use made by Haydn and Beethoven of National Melodies.

(*b*) Either :—

Write a short critical description of one of the following melodies (the melodies to be written out) :—

(1) The flight of the Earls.

(2) Handel : Harmonious Blacksmith.

(3) Schubert : Litanei.

or—

Write, and harmonise in four parts, an 8-bar Melody which begins—

and ends—

(*c*) Beethoven: Pianoforte trio in C Minor.

(1) Describe the part played in the first movement by its opening phrase.

(2) Illustrate from the slow movement Beethoven's treatment of variations.

(3) Describe the second subject of the Finale and the use which Beethoven makes of it in the course of the movement.

(Signed) W. H. Hadow.
Arthur Somervell.

C.—Draft Syllabus and Specimen Questions for Drawing (Art) as a full subject for the First School Examination.

(Prepared by the Sub-Committee on Art.)

(i) *Syllabus in Drawing (Art).*

Section A.

1. Drawing from the object.
2. Drawing from life—plant, or animal, or figure.

Section B.

3. Memory Drawing—general memory work from ordinary environment, attention being given to local buildings, views and the like, in order to widen the choice of subjects.
4. Illustration—a test in imaginative illustrated work.
5. Design—*e.g.* of a pattern or ornament having relation to a particular activity.
6. Mathematical Drawing—to include Scale, Geometrical and Perspective Drawing, with a wide choice of subjects.

Section C.

7. Written Paper—the History of Art.

In this paper appreciation rather than technical knowledge will be required, and questions will be set involving appreciation of contemporary conditions rather than purely historical knowledge.

Candidates will be asked to choose one exercise from each section (A, B, and C); and they will be required in addition to submit drawings, or specimens of craftsmanship (*e.g.*, pottery, or wood-work, or embroidery, or book-binding) of their own design and execution, from their year's work.

Explanatory Notes.

(1) *Drawing from the Object—i.e.*, the drawing of natural forms and manufactured objects by the candidates in the examination.

(2) *Drawing from Life.*

(*a*) Plant. (*b*) Animal. (*c*) Figure (draped). In each case the study or studies will be made from the plant, animal or figure. The test will involve either different studies of different positions, or one study of one position. A choice may be given, such as:—

(*a*) Draw studies of the head of the model from three different points of view.

(*b*) The model will be posed 3 times in 3 different poses: draw the whole figure in the 3 different poses.

(*c*) Make studies as best you can of the different parts of the animal in front of you, and if possible a sketch of the whole.

(3) *Memory Drawing.*—General memory work from ordinary environment, such as :—

Figure cleaning boots.
Figure dragging a cart.
Figure kicking a ball.
An Arm-chair.
A Staircase.
A Letter-box.
A Policeman.
A Village Street.

[The locality could be considered, and a wide choice could thus be given.]

Not more than *two* of the above tests should be attempted.

(4) *Illustration.*—Imaginative illustrative work, *e.g.*, subjects such as :—

I. An actual incident in History or everyday life. (The peasants' revolt or a dinner party).
II. A quotation from a poem or story.

One of these would be chosen.

(5) *Design*—Pattern or Ornament having relation to a particular activity, such as :—

[Woodwork] Panel of a door of a cupboard.
[Embroidery] Bedspread (stitches and material stated).
[Pottery] Porridge Bowl (shape and design).

(6) *Mathematical Drawing.*

Plans and elevations of subjects and simple buildings.
Geometrical Drawing, including Pattern.
Perspective (the horizontal plane).

(7) *Written Paper.*—A paper of about 12 questions might be set, on the general history of Art. Candidates should answer about 6 questions, and might illustrate their answers, wherever possible, by drawings. The following specimen questions are appended in order to show what the scope of such a paper might be.

(ii) *Specimen Questions on the History of Art for the Written Paper in the First School Examination.*

(Drafted by Dr. Barker, Dr. Cranage, and Dr. Bertha Phillpotts.)

---

1. What do you know of the paintings by primitive men, which are to be found in caves in Western Europe? What are the qualities which these paintings show?

2. Compare the sculpture of Ancient Egypt with that of Ancient Assyria.

3. Show the importance of Greek mythology in offering themes and inspiration for Greek art, either (*a*) in sculpture, or (*b*) in vase painting.

4. Compare the structure and style of a Greek temple of about the time of Pericles with the structure and style of a great English church of about the time of Henry III.

5. What were the methods of internal decoration employed in the houses of well-to-do Romans under the Empire?

6. Write a brief account of the art of mosaic, especially as applied in Byzantine churches.

7. Give some account of the style of sculpture employed in English and French churches of the 12th and 13th centuries.

8. What do you know of the treatment of religious subjects in the stained glass windows of English churches of the Middle Ages?

9. "During the Renaissance art ceased to be a matter of the guild, and became the expression of the individual." Illustrate this statement with reference to the development of any *one* of the arts during the 16th century.

10. Compare the arrangement and the style of building of a mediæval castle of the time of King John with the arrangement and style of building of a great country house of the time of the Stuart kings.

11. Discuss the characteristics of portrait painting in England in any century with which you are familiar.

12. Trace *either* the development of silver work from the reign of Charles II. to the death of George III. *or* that of the chief types of English porcelain.

13. Describe the recent development of the art of printing in England.

14. Describe *either* the characteristics of the work of Grinling Gibbons *or* the style of decoration used by the Adam Brothers.

15. What do you know of the influence of Chinese art on modern decorative art in England?

16. Give an account of the main types of lace of which you know, with notes on the history of any one of the types.

17. When you last looked into the windows of a china shop or a silversmith's shop, what were the forms of patterns you most admired, and why did they attract your admiration?

18. If you had to furnish a small house for yourself, what types of furniture would you try to obtain for the different rooms?

19. Design a small country house of about 12 rooms, and draw a plan of its garden of half an acre.

20. What kind of wall-paper do you like in your home? Take colour as well as design into account in your answer.

Signed on behalf of the Sub-Committee
appointed to report on the teaching of Art,
ERNEST BARKER,
Chairman.

D.—The Teaching of Art in connection with History.

While it is desirable that Art should be studied, and the appreciation of Art encouraged, as an independent subject on its own account, it may not be easy to arrange for such study in secondary schools, owing either to the paucity of suitable teachers, or the want of a proper equipment, or both. But even if it may often be difficult to arrange for the study of Art as an independent subject, it will always be possible to introduce some study of the subject as a part of, and in connection with, the study of other subjects. The subject of History seems to lend itself particularly to this purpose. History deals with the record of the artistic as well as with the record of the political activity of mankind. To many students the artistic aspect of History may be even more interesting, and even more charged with suggestion, than the political. Without discounting in any way the value of the teaching of political history, it is possible to emphasise the value of the teaching of History from a point of view in which the social life of the past is seen in close connection with its artistic activity. In this way students who do not readily appreciate the problems of political history may find a side of History opened to their imagination which elicits a sympathy with the past, and they may learn through their study of History an appreciation for the achievements and the methods of the artistic genius.

If Art is to be taught in connection with History, and by means of some special course in History suitable for students who wish to follow an artistic line of approach, the object should be as follows :—

(1) Generally, to visualise and to draw places, scenes and buildings. Drawing might partly take the form of dramatic, and partly that of exact reproduction. Students might be encouraged to memorise objects specially visited, to reproduce such objects, and to correct by comparison with the original the reproduction which they had attempted to make from memory.

(2) Specially, to study the buildings which express or reflect the stages of social development—the homes of peasants and of the middle classes; churches and monasteries; city halls and village barns—in close connection with general social history, the life of the people and contemporary civilisation.

In this connection the history and successive phases of dress, woodwork, ironwork, painting and carving could also be brought within the compass of the student's knowledge and imagination.

It is not suggested that the study of History on its artistic side should in any way oust the study of political history. The majority of teachers, and especially those who have been trained in History at the Universities, will prefer to teach political history; and it is probable that the majority of students will also prefer to study political history. It is only suggested that those teachers who prefer to approach History from another point of view, and those students whose tastes impel them in the same direction, should be free to teach or to study an alternative form of the subject. What is involved in the suggestion is thus an optional and alternative form of History, which might be taken by some pupils in lieu of the form at present prescribed for Certificate Examinations. In this form History would include, in close conjunction, the study of social history and the study of the pictorial, architectural and other artistic expressions of the taste and genius of the period of social history selected.

If students had received a training in History of this description, they would be well qualified to receive a special training in Art at the age of maturity. The training here suggested contains an element of execution, in the sense that it involves the drawing and reproduction of artistic objects; but the element of execution need not be specially emphasised, and the attention of the student might be mainly directed to the social life from which the art of the period sprang, and in relation to which it bore significance.

In this memorandum attention has been definitely concentrated upon History. It is obvious, however, that there is a large field, still unexplored and uncultivated, for the development of artistic appreciation through the study of literature. The recent report of the English Committee contains abundant suggestions on this matter, and suggests a revision of the curricula at present prescribed in English literature. The study of Literature as a product of the artistic sense and a reflection of the general experience of life in a given epoch—a study which might be connected with the general social history and the other artistic expressions (architectural, pictorial and the like) of that epoch—deserves the most serious consideration. It is more difficult to suggest any scheme for the use of scientific subjects in connection with art and artistic appreciation. Something, however, might be attempted in the field of Geography; and the power of drawing might be fostered, and that of observation developed, through an alternative form of that subject. It is even possible to conceive of a general study of Natural Science in connection with Art by students whose bias was definitely towards the artistic side. Botany deals with flowers, and flowers have beauty; Mineralogy with crystals, and crystals are marvels of construction; Anatomy with the body, and the body is the most wonderful of all works of art.

In order to show the application in detail of the general suggestion which we have made for the connection of the study of History with

that of Art, we have framed a form of syllabus and suggested a number of specimen questions. The syllabus (it need hardly be stated) is purely illustrative; and the various examining bodies—should they decide to attempt any experiment on the lines which we have suggested—will of course frame their own syllabus at their own discretion. The syllabus which we have framed, and the specimen questions which we have put forward, are confined to the field of English History. We have not thought it necessary to make any suggestions relating to the study of Classical Art in connection with the social history of the ancient world. Much has already been done in this direction; and we confidently hope that classical scholars will continue to build on the foundations which they have already laid. The social history of Ancient Greece and that of Ancient Rome are already subjects of study and of examination in the University of London. The development of Greek architecture and sculpture is a subject of study and examination for Honour Moderations and Literæ Humaniores at Oxford; and it is obviously possible to find an analogous curriculum and subject of examination in the field of Roman buildings and monuments.

The Higher Certificate Examination.

(Second School Examination.)

English History.

Three papers are at present set to candidates who offer English History in the Second School Examination. We propose that three papers should also be set to candidates who offer the alternative form of History which we suggest. One of these should be concerned with political history, and should accordingly be a common paper, taken alike by candidates who offer History in the existing form and by those who offer it in the alternative form. The other two papers should be concerned with Social History and the History of the Arts and Crafts, on the following scheme :—

Paper I.—A. The social history of England, including both economic development and the history of general civilisation,
either (*a*) to 1485,
or (*b*) from 1485 to 1914.
B. The history of arts and crafts, including architecture, painting, pottery, metalwork and woodwork, and dress,
either (*a*) to 1485,
or (*b*) from 1485 to 1914.
Paper II. An art or craft selected for special study, such as—
(*a*) The development of Gothic architecture in England, both ecclesiastical and lay, to 1550.
(*b*) Arms and Armour with Heraldry.
(*c*) Painting and Illumination.

Questions for part B. of Paper I (Period to 1485). (*Prepared by* Miss J. I. Monkhouse *and* Miss Welch.)

1. Describe, with a sketch, a Norman doorway, with a group of people entering in the costume of the period.
2. Give an account of the objects you would see in a peasant's house in the time of King John, and compare them with those you would see in a country cottage to-day.
3. How did the mediæval artist introduce colour into his churches? Give an account of any Gothic church you know where evidence remains of this custom.
4. Illustrate the art of woodwork in the later Middle Ages from the roofs, screens, and stalls of any church you know.

Specimen questions for Paper II. (*It is assumed in this instance that the development of Gothic Architecture is offered as a special subject.*)

(*Prepared by* Miss J. I. Monkhouse *and* Miss Welch.)

1. Draw a plan either of a Norman parish church, or of a thirteenth-century cathedral church, either from your own design of this type or as a copy of an actual model.
2. What part did a buttress play in the development of a building? Illustrate your answer with reference to any building you have studied.
3. State what you know of the development of the farmhouse in your own county.
4. The tracery of the windows of churches shows a marked development between 1100 and 1400. Describe, with sketches, the changes and account for the development.
5. Give an account, by sketches and otherwise, of the banqueting halls of the Middle Ages, with their roofing and arrangement, mentioning any special one you have studied.
6. In Henry VII.'s Chapel, or any other similar building of which you have a first-hand acquaintance, show how the character of the ornament is consistently repeated throughout.
7. How were the monks' domestic needs provided for?
8. What do you know of the buildings of almshouses or cottages or schools in this period?

Specimen questions for the whole of Paper I. (Period 1485 to 1914).

(*Prepared by* Miss M. Richardson *and* Miss Taylor.)

A.

1. Show how shipbuilding was accommodated to (*a*) the change from pelagic to oceanic seafaring, (*b*) the use of large cannon in sea fighting.
2. Do you think that the Mercantile System was the best policy to meet the needs of 16th and 17th century England? When and why did it begin to lose favour?
3. Discuss the effects of the Renaissance and Reformation on education in England.
4. What knowledge of contemporary social life do we gain from Pepys or Pope or Boswell or Jane Austen?
5. Estimate the importance of James Watt in the history of civilisation.
6. Discuss the contribution of Science towards the relief of human suffering during the last two centuries.
7. "Improved methods of communication are the most hopeful of the forces that are working towards the development of international co-operation and alliance." Discuss this statement.

B.

1. What are the main differences between the handwriting of the 14th and that of the 17th century? What part did the invention of printing play in producing these differences?
2. Write a correspondence between Henry VIII. and the author of the portrait of Anne of Cleves.
3. "Tudor and Stuart architects avoid the faults of both their predecessors and successors." How far do you agree with this statement, and to what do you attribute the weakness of the earlier and later designs?
4. Quote from an imaginary diary an account of visits to London in 1665 and in 1670.

5. "All over Europe the ideals of applied art have remained the ideals of the Pompadour." What is meant by this statement?
6. "In the history of art we read the spiritual history of the race." Do you agree with this statement? Quote instances in support of your view.
7. In which do you find greater promise of a genuine popular art—the modern ball room dancing, or the folk dancing revival?
8. What improvements were made in the 18th century in connection with either pottery or weaving?

The School Certificate Examination.

(First School Examination.)

At present the subject of History is commonly recognised in the School Certificate by a single paper divided into two parts, both dealing with political history. Three periods, which are alternative to one another, are sometimes allowed as options. It would be quite simple to allow an alternative subject dealing with social history and the history of art in England; to allow within this paper a choice of three periods; and to set in each period (*a*) a few general questions on English social history, which must necessarily be answered, and (*b*) a choice of questions on the history of English arts and crafts, illustrated by sketches and drawings.

All questions in the second part might be answered by written description or by sketches (except where one or the other was specifically required); no marks would, however, be given for drawings in which the main facts were wrong.

Specimen questions for Part (*b*). (*Prepared by* Miss J. I. Monkhouse *and* Miss Welch.)

1. What difference would you expect to see, compared with to-day, in the main street of a town in Queen Elizabeth's reign as regards buildings, costume, vehicles, and the like?
2. Describe the court costumes of Henry VIII. or Charles I.
3. What were the main pieces of furniture of a country house in the time of James I.?
4. Describe any work of art which has particularly struck you of the time of Charles I., or Queen Anne, or George III., or Queen Victoria.
5. What are the characteristics of any church in the county in which you live?
6. Describe, with sketches, a drawing-room designed by the Adam Brothers.
7. With the given sketches, reconstruct the different houses for the period to which they belong. Sketches will be given.* (A choice would be allowed.)
8. Describe, with sketches, some private mansion, in the period you have studied, with which you are acquainted.

Signed on behalf of the Sub-Committee
appointed to report on the teaching of Art,

Ernest Barker,
Chairman.

[The Chairman desires to record the eminent services rendered to the Sub-Committee by the Principal of the Royal College of Art (Mr. Rothenstein), to whose suggestions the main lines of this part of the Appendix are due.]

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* For example: an oriel window; a Renaissance doorway.

APPENDIX V.

MEMORANDUM BY DR. J. G. ADAMI, C.B.E., M.D., F.R.S., ON ANATOMICAL AND PHYSIOLOGICAL DIFFERENCES BETWEEN THE SEXES.

Anatomical Differences.

In the earliest years the male child is generally larger and heavier than the female, possesses a larger and heavier skeleton, a larger, more developed musculature, and larger heart, lungs, liver and other organs.

In boys and girls between the ages of 10 and 18 there appear to be three well-marked physical differences :—

(*a*) Rate of growth.
(*b*) Date of adolescence.
(*c*) Anatomical age.

While before puberty little or no difference is noted, after puberty—that is to say, within the secondary school age—a fourth physical difference is noted, namely :—

(*d*) The composition of the blood.

(*a*) With regard to the rate of growth, an investigation recently conducted on Glasgow children showed that, from the age of 5 to 11½, boys were slightly taller and heavier than girls. At 11½ to 13½ girls were slightly taller and heavier than boys. At 13½ boys regained their superiority, and rapidly increased it.

There have been numerous investigations upon this subject; the earlier of these are well summarised in Stanley Hall's *Adolescence*, chapter 1. In *Health and Physique of School Children* (A. Greenwood; P. S. King, 1913) we are given the English data collected through school inspections. This is a thorough review of all the available evidence by excellent statistical methods. A recent very valuable study of children attending public schools in New South Wales has been made by Mr. F. A. Mecham, Statistical Officer of the Education Department, New South Wales. Examining 216,470 children, both rural and urban, he finds that—

> "The average weight for boys at 5 years of age is 40½ lbs., while for girls it is 39¼ lbs. This advantage in weight is retained by the boys in a slightly greater degree until the age of 11½ years is reached. The girls then become heavier than the boys by a little over three-quarters of a pound, the weight at the age being—boys, 69·60 lbs., and girls, 70·42 lbs. From 11½ to 15½ years the girls increase in weight over the boys every half-year, the maximum increase being reached at 13½ years, where girls are shown to be 7·37 lbs. heavier than the boys. At that age the average weight of a boy is shown as 83·02 lbs., while for a girl it is given as 90·39 lbs. At 14 years of age girls are 5·87 lbs. heavier than boys, the weights for that year being—boys, 88·20 lbs., and girls, 94·07 lbs. At 14½ years the girl's advantage in weight falls to 4·49 lbs., while a half-year later, namely, at 15, the average weight of a girl is shown as 102·97 lbs., and for a boy 99·79 lbs., or an advantage for the girls of 3·18 lbs. At 15½ years, when the boys become heavier than the girls, the advantage on the side of the boys is only ¼ lb., but at the age of 16 years a comparison of weight shows that boys are 2·04 lbs. heavier than girls. A boy at 16 weighs 111·17 lbs., and a girl 109·13 lbs."*

* Annual Report of the Principal Medical Officer of the Department of Education for New South Wales for 1918–19, pp. 69–70.

The Committee have received from Dr. F. C. Shrubsall a memorandum upon the rate of growth of boys and girls. This may be summarised as follows :—

There is some evidence indicating that the maximum growth in stature occurs in early summer and weight in the autumn, but it is not clear whether these facts are truly seasonal, the increase in weight being comparable with that noted in animals prior to the period of hibernation, or whether it can be ascribed in part to the more general outdoor environment of the summer season. Children appear to pass through periods of leanness and plumpness. Stratz recognises the first period of plumpness between the ages of 1 and 4, the first lean period between 5 and 7, a second period of plumpness between 8 and 10, and a second period of leanness between 11 and 15, followed by the period of puberty. Several observers think that the onset of the second dentition is preceded by a period of rapid growth, and most observers recognise a slacking of growth in girls between 8 and 9, and in boys between 9 and 11. The rapid growth just before puberty is generally preceded by a period of slackness from 1 to 2 years. These variations in rhythm are more obvious in stature than in weight, as those in weight are more peculiarly liable to accidental aberrations. Tables of average and annual increments indicate that the prepubertal rise occurs in girls at an earlier period than in boys. Boys grow more rapidly than girls up to about 9 or 10 years of age, while girls grow faster than boys from about 10 years of age to 14 or 15. Differences in stature between the sexes are more noticeable than those in weight, chest dimensions, or cranial volume. The greater growth in the stature of girls precedes the onset of puberty, and it seems probable that the physiological changes which occur when the condition of pubescence is completely established lead to changes in the metabolism of the body especially in regard to the fixation of salts.

With reference to differences in stature, the latest full study is that by Mr. Mecham in the New South Wales Report already noted, page 70—

> " From 5 to 10½ years girls are shorter than boys, while from that age until 15 is reached girls are recorded as taller than boys. At the age of 5 years the average height of a boy is 42·05 inches, while for a girl it is shown as 41·56 inches. This is an advantage of about half an inch for the boys, and the boys retain this advantage until the age of 7 years is reached. From then on till 10 years the margin is reduced to about a quarter of an inch on the side of the boys, while at 11 years the average height of both boys and girls is the same, namely, 53·64 inches. At 11½ years, where the girls move ahead of the boys, the margin on the girls' side is 0·32 of an inch. From then on to 13 the advantage at each half-year is about three-quarters of an inch, and at 13½ years the maximum increase is shown, girls being here recorded as slightly over an inch taller than boys. This advantage then declines, and at 15 years the girls are about a quarter of an inch shorter than boys. At 16 the respective heights of boys and girls are 64·24 and 62·27 inches, an advantage of almost 2 inches for the boys."

The Committee have received further confirmation of these results from Miss R. M. Fleming, of University College, Aberystwyth, who for some years past has been engaged in measuring, at intervals of a year, school children (boys and girls), she being a school teacher and thoroughly conversant with school conditions. She calls attention more particularly to the increase of cephalic index with growth and to the fact that, in early stages, this tendency is more marked in girls than in boys. Miss Fleming notes that her observations upon the growth of the head tally with Professor Pryor's studies of X-ray photographs of the bones of the hand, which show that in the progressive ossification a girl of 8½ has reached the

same stage of development as a boy of 10.* She notes that changes in the head form are very slight or altogether absent in girls of 16 years onwards, whereas they continue to be marked in boys till maturity. From 3 to 8 years of age the girls' increase in cephalic index was marked, but from 9 years onwards it was not nearly so noticeable. From 3 to 10 years of age the boys did not show much increase in cephalic index, but from the age of 10 onwards the boys' average increase much exceeded that of the girls, going on rapidly until maturity.

(*b*) Adolescence in girls is, as a rule, earlier by one year or two than in boys.

The results of recent researches with regard to the physical phenomena of pubescence seem to indicate that the physiological age of many pupils is not in direct relation to their chronological age, and that stature and weight vary directly with the physiological age in a much closer relation than with the chronological age. Girls and boys who pass rapidly through the stages of pubescence and grow most rapidly are subjected to the greatest strain in the accommodation of their circulation to the new conditions, and need more careful supervision for the time being in mental and physical work. Such supervision is even more necessary for girls than for boys. In general, in comparing boys with girls, it may be noted *that the girl is proportionately almost adult while the boy is still adolescent*, and that *the initial periods of strain fall at different periods*. The various curves of growth obtainable from massed statistics seem to point to the fact that *attention should be paid to the physiological rather than to the chronological age*, and that during the periods of rapid growth, whether seasonal or due to the onset of pubescence, the strain should be lightened as much as possible.

(*c*) Anatomical age, as shown by teeth, nails, hair, &c., seems to indicate that girls are developed in advance of boys to the extent of about six months at 5 years of age and of two and a half years at the age of 15.

(*d*) The fourth difference has been widely studied. This, however, only shows itself after puberty, in other words, only in the latter years of secondary school life. Up to the age of puberty little distinction has been detected in the composition of the blood of the growing boy and girl, either in the number of red and white corpuscles, the amount of hæmoglobin, or the specific gravity. After puberty a definite distinction manifests itself. The observations regarding these differences have been summarised by Havelock Ellis.† According to him, Denis was the first to draw attention to the fact that there are sexual differences in the blood. His observations were confirmed by Lecanu, Becquerel and Rodier, who showed that the blood of man contains less water and more red corpuscles, and is consequently of a higher specific gravity than that of women. Cadet and Korniloff found that the red-blood corpuscles in men average 5,200,000 per cubic millimetre as compared with 4,900,000 in women. Other observers have obtained closely concordant results, thus—

	Men.	Women.
Welcker	5,000,000	4,500,000
Laache	4,970,000	4,430,000
Macphai	5,075,000	4,676,000
Ehrmann and Siegel	5,560,000	5,000,000
Otto	4,990,000	4,580,000

* *cf. The Development of the Bones in Early Life*, by Prof. T. Morgan Rotch, of Harvard, and Prof. J. W. Pryor's article, *Some Observations on the Ossification of the Bones of the Hand* (Bulletin of University of Kentucky, vol. viii., No. 11, Nov. 1916).

† Havelock Ellis: *Man and Woman*, 5th edition, London, 1914, pp 266–270. (Walter Scott Publishing Co.), *cf.* Leichtenstern, *Untersuchungen über den Hämoglobingehelt des Blutes*, Leipzig, 1878.)

As regards the amount of hæmoglobin, Leichtenstern found the average amount in women from the age of 11 to 50 was 8 per cent. less than in men of the same life-period. McKendrick found an average of 14·5 per cent. of hæmoglobin in the blood of men, as compared with 13·3 per cent. in the blood of women, or a difference of just under 9 per cent. (14·5 : 13·3 = 100 : 91·03). As regards the specific gravity, Lloyd Jones, in his very full study of 15,000 persons of both sexes, found that the specific gravity of the blood is the same in both sexes up to the age of 15. The specific gravity in women rises up to the 14th year, when it averages 1055·5. In men, the specific gravity continues to rise until the age of 17, when it averages 1058. There is a definite reduction in women after puberty, so that the specific gravity is lower at 17 than it is at 14, and between the ages of 17 and 45 it remains about three points lower than it is in men. In other words, the blood of women is thinner than that of men; they reach the threshold of anæmia more easily.

At birth, save for the organs of generation, there may be little to distinguish the child of one sex from that of the other, but progressively during childhood up to puberty, the secondary sexual characters become more and more manifest—extent and distribution of hair, conformation of the pelvis and other skeletal parts, and so of the body in general development, or otherwise, of the mammæ and of the larynx and vocal chords, &c.

But while this is the case, minute microscopic study of the various organs in the two sexes (the essential organs of sex being excepted) demonstrates that the differences are *quantitative*, not *qualitative*. There appear to be no differences in the anatomy of the brain and special senses in the two sexes. At most the average brain of the males of any branch of the human race is larger than the average brain of the females of that branch. This greater average size of the brain, while closely associated with the larger size of the body, carries with it the possibility that the male in general is more generously supplied with cortical nerve-cells and co-ordinating fibrils—*i.e.*, with the apparatus of intellect. There appears, however, to be no positive demonstration either that this is the case, or that, *per contra*, there is a greater amount of " padding "in the grey matter of the male brain.

Yet even if we admit the larger size of the brain as a whole in the male and admit, further, that correlated with this larger size there are more abundant nerve-cells, this does not permit us to come to any definite conclusions. For much of the activity of the brain is associated with such processes as the co-ordination and control of muscular movement—with processes which are non-intellectual. We should have to prove in the first place the existence, whether localised or diffused, of a special intellectual apparatus, and that this is more fully developed in the male than in the female. This with our present knowledge—or ignorance—we have not accomplished, and as it is a matter of common knowledge that a man may be athletic with remarkable co-ordination of his muscles, with equally remarkable control of his emotions and with his special senses well developed, and that he may yet show little intellectual capacity, it is obvious that we are not in a position to decide from anatomical considerations that the average male is potentially more intellectual than the average female.

Physiological Considerations.

If the essential organs of sex either (*a*) fail to develop or (*b*) be removed in early life, the individual tends to assume an intermediate or neutral state, the secondary sexual characters peculiar to the one or other sex failing to develop, or reverting towards those of the other sex. Obviously the development of these secondary sexual characters is bound up with the presence and function of the ovaries and testes. These organs are not merely foci or receptacles in which the primordial germ-cells are lodged and undergo that succession of changes which lead to the eventual production and liberation of mature ova or sperm-cells respectively, but,

associated with that succession, these essential organs of sex exert a profound influence upon the body in general. The investigations of the last thirty years have led physiologists to the conviction that this influence is exerted not primarily through the nervous system, but through the agency of an internal secretion which differs in its properties in the two sexes. It is unnecessary here to enter into the vexed question as to the particular cells (*e.g.*, the genital cells proper or the interstitial cells) responsible for these internal secretions of the ovary and testes respectively. There is ample evidence of the existence of these secretions, and, indeed, that the ovary, according to circumstances, is capable of giving origin to more than one. For example, the cells of the Graaffian follicle, *i.e.*, the cells surrounding the matured ovum, when the latter escapes and becomes fertilised, yield a secretion which is essential for the proper attachment of the fertilised ovum in the uterus. It is clear that throughout life both ovary and testes elaborate and discharge into the surrounding lymph, and so eventually into the blood stream a substance or substances which, carried to other parts of the body, modify the growth and activities of the other tissues and organs, and exert a more selective influence upon those tissues and organs concerned in the production of the secondary sexual characters.

That even in the womb these interstitial cells (or the immature seminal tubes) are active and affect the rest of the organism has been demonstrated convincingly by Lillie,* in his remarkable studies upon the origin of the "Free Martin" in cattle. The cow may cast twin bull calves, or twin cow calves and either set of twins undergo a normal development. But where it casts one bull and one cow calf, while the former develops into a fully fertile animal it has been noted for generations that the latter may grow into a kind of imperfect steer—a "Free Martin"—with bodily conformation approximating towards that of a bull, and complete sterility. As John Hunter pointed out, its sexual organs are of the female type, with atrophy of the ovaries. Now Lillie has given the explanation. If the placentas remain distinct there are born two normal calves, male and female. If, however, they are in close apposition, that of the more active male, growing more rapidly, impinges upon and invades the territory of the other, the chorionic vessels anastomose, and the more powerfully beating heart of the male fœtus forces its blood into the vessels of the female, and the bloods thus become mingled. In the male the testis with its interstitial tissue develops first and evidently produces an internal secretion before the ovary becomes active. In this way the female comes under the influence of the male hormones, and not merely is differentiation in the ovary arrested, but in place of developing ova there may appear imperfect sperm tubules, while coincidently the secondary sexual characters approximate to the male type.

The ovaries and testes are, however, not the only endocrine glands, glands, that is to say, providing an internal secretion that affects the bodily metabolism. There is another group embracing the thyroid, thymus, the pituitary, the pineal and the adrenals, all of which are materially affected by the state of the sexual glands proper, and themselves through their secretions exercise very material influence on the activities of the sexual glands and, either directly or indirectly, on the secondary sexual organs. The physiologists of to-day are engaged in disentangling the relationships and mutual activities of this group. This is definitely established that there is a curiously intimate relationship between the ovaries and the thyroid. Maturation of the ova and the resultant menstruation is seen to be accompanied by enlargement of the thyroid, so also in pregnancy the thyroid undergoes swelling, while contrariwise atrophy of the thyroid is seen to be accompanied by arrest of the genital functions, delayed puberty, irregularity and arrest of menstruation, amenorrhœa, sterility, &c. On the other hand, hyperthyroidism and excessive thyroid

* Lillie, F. R.: *Journal Experim. Zoology*, 23, 1917, 371.

secretion may affect the genital functions in two ways. There is a condition of hyperthyroidism (often entailing mental and emotional symptoms) which produces or accompanies excessive menstruation, most often seen in girls about puberty. In the years immediately following upon the war, in several districts in England medical men have commented upon the increased frequency of "Rossetti" necks in young women—of necks swollen so as to have a convex outline from above downwards in front, owing to enlargement of the thyroid gland.

But with true exophthalmic goitre, the opposite condition of amenorrhœa is most often encountered. Early cases, according to Dr. Blair Bell, may exhibit menorrhagia (excessive and prolonged menstrual discharge), and undoubtedly in some advanced cases the metabolism is so gravely disturbed and the discharge of calcium through the urine is so persistently increased that this in itself may remove the stimulus for more abundant or more frequent menstruation.

These facts are mentioned in order to emphasise the intimate association in the female between ovarian and thyroid activity. It is comparatively rare to encounter thyroid disorders of the same type in the male. There appears in man to be closer association between the testes and the adrenals. Attention was first called prominently to this relation between the cortex of the adrenal glands and maleness by Professor Bulloch and Dr. Sequiera, of the London Hospital, in a classical paper published in 1905.* Since then our knowledge of the subject has materially advanced, and as Professor Ernest Glynn, of Liverpool, summarising the evidence,† points out, whereas hyperplasia (overgrowth) of the cortex of the adrenals, or tumours originating from the same have no effect upon the secondary sexual characters of the *adult* male, in the male child such overgrowth or new growth is found in cases of "Infant Hercules." Boys so affected show precocious growth, with either obesity or great muscular development, growth of hair on face and body as in the adult male, and extreme development of the external genitalia. The striking fact is that like conditions of the adrenals (1) in young girls is associated with precocious growth and "pseud-hermaphroditism," the bodily conformation, hairiness and overgrowth of the external genitals all approximating to the male type; (2) in adult women before the menopause, the breasts atrophy, as do also the uterus and ovaries, hair develops on the upper lip and face, with, often, deepening of the voice. The most remarkable case is one which Dr. Gordon Holmes has permitted Professor Glynn to publish, in which a girl of 24 had been normal in appearance and history until the age of 19. Then menstruation ceased. At 20 she had a beard and moustache. Three years later she was noted as thinner and flat-chested, with increase of hair upon her limbs, atrophy of uterus, &c. In this year a large tumour was removed from between the liver and kidneys. Sections sent to Professor Glynn showed this to be a tumour of the adrenal cortex. Following upon the operation menstruation returned, the hair disappeared from the face, the figure became characteristically female, and she regained all the attributes of a modest woman. I purposely give these details at some length, inasmuch as I find that thus far this evidence of the differences in the inter-relationship between the organs of the internal secretions and the essential and secondary organs of sex is scarcely known outside the medical profession. Obviously it has a profound bearing upon the problem before the Committee. Others associate the pituitary, or hypophysis cerebri, with masculine characters, deficiency of the anterior portion being often found associated with a more rounded feminine contour of the body and the feminine disposition of bodily hairiness, while its overgrowth has been found associated with virility. The evidence, anatomical and experimental, of such relationship, while striking, is still small in amount. The same is true as regarding the pineal gland.

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* Bulloch and Sequiera. *Trans. Path. Soc., London*, 56, 1905, 189.

† Glynn: *E. Journal of Obstetrics and Gynæcology of the British Empire*, Spring Number, 1921, p. 44.

This relationship between the ovaries and the thyroid appears to be of peculiar significance in respect to the calcium metabolism of the body. The part that calcium (lime) and its salts play in the proper functioning of the body is being more and more brought home to us. It is realised to-day that they are necessary for much more than the proper formation of bone, that they are necessary for the activity of certain important ferments, that they play a part in maintaining the blood pressure, that, as Ringer and Buxton showed years ago, they control the excitability of muscle. From these and other observations on the neutralising action of calcium upon the excitability of muscle induced by potassium and other salts, MacCallum and Voegtlin* were led to test the effects of calcium salts upon experimentally produced tetany. Tetany is a state of convulsive excitability of the muscles which may be set up by several causes, and can experimentally be produced by removing the minute parathyroid glands in man and the lower animals. They found that so long as they continued the administration of calcium for so long could they arrest and prevent the onset of tetany in these animals, observations which have been abundantly confirmed by Edmunds.† Hertz,‡ also, has noted that following the removal of the thyroid and parathyroids in man, the tetany which manifested itself can be prevented by the administration of parathyroid, while further, as showing the relationship between these glands and the calcium metabolism of the body, Erdheim§ has observed that in cases of osteomalacia, in which there is great loss of calcium from the system with pronounced softening of the bones, the parathyroids are found diseased (hypertrophied). More recently Noel Paton and his pupils have shown that methylguanidin is an active factor in the production of tetany, and that this substance is normally destroyed by the parathyroids, and in so doing has thrown doubt upon the part played by calcium deficiency in the development of this condition.‖ While these observers point out that after removal of the parathyroids, methylguanidin accumulates in the body and makes an appearance in the urine, they have not, however, proved either that methylguanidin is the constant and essential cause of tetany or that the parathyroids play no part in the calcium equilibrium of the body. Clinical evidence, indeed, is strongly in favour of this latter view, and within the last few weeks Vines, who previously had, with Blair Bell, laid stress upon the fact that the calcium of the blood is present in two forms, ionised and unionised, studying certain cases of chronic ulceration has shown that in these there is a distinct lowering of the ionised calcium of the blood (from a normal 10·7 mg. per cent. to 6 and even 4·83), and by the exhibition of parathyroid gland substance he has raised the amount to the normal and at the same time brought about healing of the ulcers.¶

Blair Bell** has carried the matter further, and has laid down as the results of his studies that there is an important difference between the male and the female, showing itself with the onset of puberty, namely, that *in the female the calcium metabolism becomes unstable, whereas in the male it remains relatively constant.* Objection has been taken to his microchemical method on the ground that it is wanting in quantitative exactitude. These objections would be valid were the differences recorded minute, but, according to Blair Bell, they are too great to be explained

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* MacCallum and Voegtlin : Bull. *Johns Hopkins Hospital*, 19, 1908, 91.

† Edmunds : *Jour. of Path and Bact.*, 16, 1912, 481 ; 18, 1913, 5 ; and 21, 1916, 23.

‡ Hertz : *Guy's Hospital Reports*, 67, 1913, 153.

§ Erdheim : *Akad. d. Wissensch. Math. Naturwiss. Kl. Wien.*, 116, 1907, Heft 3, 311.

‖ Paton, Findlay and Burn : *Guanidin* [and Methyl-guanidin] *and Tetany*, *Jour. of Physiol.*, 17, 1915, xvii.

¶ Grove and Vines : *British Med. Journal*, 1921, ii., 687.

** Blair Bell : *The Sex Complex*, 2nd edition, London, 1921. For details of his method see *British Med. Journal*, 1909, I., 517, 592, 655.

by errors of observation. He suggested that the method shows the presence of calcium in an ionised form.

He finds that both the thyroids and ovaries (the latter in their periods of functional activity) promote the discharge of calcium from the system, whereas the adrenals, the pituitary and the parathyroids favour its retention. He finds in the normal woman a periodic reduction in the circulating calcium, followed by a gradual rise; there is a distinct ebb and flow. I have consulted several leading physiologists upon this point, and find that there is widespread doubt regarding Dr. Blair Bell's "ebb and flow" doctrine based upon the inaccuracy of his micro-chemical method. Blair Bell's observations were made at a time when the finer methods of determination of calcium in the blood had not been developed. As G. W. Clarke* points out, certain of the methods in frequent use to-day are far from perfect. The most thorough, that of ashing with platinum, is laborious and time-consuming, and he concludes that, after all, a modification of the direct precipitation method employed by Blair Bell, with permanganate titration is accurate to approximately 2 per cent., the values agreeing well with those obtained by the platinum method.†

The only observers, to my knowledge, who have made studies along Blair Bell's lines are, on the one hand, Meigs, Blatterwick and Carey,‡ who, in cows, found the calcium of the serum practically constant during pregnancy and lactation, and, on the other hand, Kehrer,§ who, employing an ashing method, found a definite fall in the calcium of the whole blood of women during the latter half of pregnancy, and particularly low values in cases of eclampsia complicating pregnancy, and Kehrer appears to have employed the more accurate method. But no one, apparently, has repeated the observations upon the existence or non-existence of a periodic calcium tide in woman. What has been shown by many observers is that in health the calcium of the blood remains remarkably constant, the amount varying from 9·3 to 11 mgm. per 100 cubic centimetres of serum. While, on the one hand, we recognise the existence of a large store of calcium in the bones which, in the case of loss of calcium in the blood, might be expected to restore the balance with relative rapidity, on the other hand we have abundant clinical evidence that, in certain conditions of disease (tetany of various orders, eclampsia, chronic ulceration (Vines) and certain forms of nephritis), there may be definite lowering of the calcium content of the fluid of the blood. It is thus not impossible that during the menstrual period there may be a transient lowering of serum calcium. But, admittedly, Blair Bell's observations need confirmation by the more precise methods of blood analysis which are at our disposal to-day.

I am prepared to find, further, that during lactation the blood yields some evidence of the heavy call upon the calcium of the blood and of the body in general. It has been calculated that the calcium contained in an ounce (two tablespoonfuls) of milk is equivalent to a dose of five grains of calcium lactate.

This at least is significant; that the condition of osteomalacia or extreme softening of the bones as a general, as distinct from a local, condition, is almost entirely confined to the female sex, frequently in associa-

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* Clarke, G. W.: *Journal of Biol. Chemistry*, 1921, 49, 487.

† What appear to be yet more delicate methods, suitable for the detection of calcium in small quantities of serum, have been published by Kramer and Tisdall (*Journal of Biol. Chemistry*, 1921, 47, 475) and by Laidlaw and Payne (*Biochemical Journal*, 1922, 16, 494). The latter appears to be particularly delicate.

‡ Meigs, Blatterwick and Carey: *Ibid.*, 1919, 37, 1.

§ Kehrer: *Archiv. für Gynakologie*, 1920, 112, 487.

tion with rapidly recurring pregnancies; it is rare in the man. And some cases have been arrested by removal of the ovaries.*

To a slighter drain or defective calcium metabolism must probably be ascribed that lesser grade of softening of the bones leading to spinal curvature and postural defects, so common in girl pupils, so relatively uncommon among boys. To a deficiency in calcium may also be ascribed, at least in part, the greater nervous excitability of the female.

Physio-Psychological Considerations.

Bearing these data in mind, we can now approach the problem of the psychological differences between the sexes.

It has already been pointed out that anatomically, save in the matter of average size of brain (and spinal cord), there is no difference that has thus far been determined.

Have we any evidence that the nervous system is affected in its function directly or indirectly by the endocrine activities of the essential organs of sex, and that in this way any different trend may be given to the cerebral functions in the two sexes?

The very fact that with atrophy or removal of the ovaries before or during the period of sexual activity there is developed not merely a coarser and more masculine skin, and more masculine voice, but also a more masculine—or less feminine—loss of reserve and approximation towards a masculine bluntness of speech, is clear evidence that the ovaries have an influence upon the mental state. The same is true regarding the mental characteristics of the eunuch, who exhibits a lack of those mental qualities which we denominate virile. But whether the action of the genital hormones is direct upon the nervous system, or indirect through stimulation of other endocrine glands to increased excretion, is not as yet determined. We know, for example, that the secretion of the adrenals has a striking effect upon the sympathetic nervous system, and that hyperthyroidism is accompanied by a train of changes in the nervous state of the individual, characterised by tremors, fearfulness, and a heightened emotional state. We have still to determine whether—which is quite possible—the long-continued influence of the testicular hormones acting upon the nervous system set up in the brain a different response to that exerted by the ovarian, or whether we deal rather with a summation of various responses on the part of the endocrine glands and the effects of their hormones upon the central nervous system, a summation which is different in the male from what it is in the female.

With Professor Godfrey Thomson, it may be serviceable here to quote from Punnett (*Mendelism*, 1918, p. 208)—

> "Effective mental ability is largely a matter of temperament, and this in turn is quite possibly dependent upon the various secretions produced by the different tissues of the body. Similar nervous systems associated with different livers might conceivably result in individuals upon whose mental ability the world would pass a very different judgment. Indeed, it is not at all impossible that a particular form of mental ability may depend for its manifestations, not so much upon an essential difference in the structure of the nervous system, as upon the production by another tissue of some specific poison which causes the nervous system to react in a definite way."

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* This is not opposed to the observation previously noted, that parathyroids have been found diseased in this condition. As I pointed out many years ago, the like symptoms may be set up by over-activity of an organ supplying an internal secretion, and defective action or disease of the organ which neutralises that internal secretion or the products of its activity.

I am indebted to Mr. Burt for a helpful criticism upon the above passage, namely—

> That disturbances in the endocrine glands appear to affect emotional characteristics far more than intellectual abilities, and it is in the former that the sexes seem to differ most.

The considerations here given indicate why it is that we incline to agree with some of our medical and psychological witnesses that the products of the ductless glands discharged into the blood differ in their proportions in the male and female, and that *à priori* here probably is to be found the clue to the inconsistencies between short laboratory experiments and the general belief that women have, in certain directions, a different kind of mental ability or emotional temperament from that exhibited by man.

It appears to be an established fact that girls in general are (1) not so strong physically as boys; (2) are more highly strung and liable to nervous strain, which very possibly is associated with the fact that physiologically they are liable to heavier drains upon the circulating calcium of the blood; and (3) with their thinner blood with lowered hæmogoblin content, after puberty they are nearer to the threshold of anæmia.

Medical statistics indicate that there is a higher percentage among girl pupils of cases of anæmia, spinal curvature, defective eyesight and minor physical defects.

APPENDIX VI.

Time Tables of a few Secondary Schools of Different Types.

(*Note.*—We have taken the latest available time table in each instance, but it must be borne in mind that such time tables are frequently modified. The time tables show the number of hours a week devoted to each subject.)

I.—Time Table of a Municipal Secondary School for Boys and Girls (*i.e.*, a co-educational day school).

(School Hours :—9 a.m. to 12.10 p.m., and 2.5 p.m. to 4.5 p.m.)

Form	II.	III.	IV.	Lower V.	Upper V.s.	Upper V.m.	Lower VI.
Average Age	Y. M. 11 10	Y. M. 12 0	Y. M. 13 10	Y. M. 14 7	Y. M. 15 8	Y. M. 16 6	Y. M. 17 5
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	...	...	...
English Lang. and Lit.	$3\frac{1}{3}$	$4\frac{2}{3}$ [3]	$2\frac{2}{3}$	$3\frac{1}{3}$	2	$3\frac{1}{3}$	$2\frac{2}{3}$
History	2	$1\frac{1}{3}$	$1\frac{1}{3}$	2	$1\frac{1}{3}$	2	2
Geography	2	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	2	$2\frac{2}{3}$	2
Latin	...	$3\frac{1}{3}$ [3]	$3\frac{1}{3}$ [4]	$3\frac{1}{3}$ [5]	2 [6]	$3\frac{1}{3}$ [6]	$1\frac{1}{3}$ [7]
French	4	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	2	$3\frac{1}{3}$	2
Mathematics	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	2	$3\frac{1}{3}$	$1\frac{1}{3}$
General Science	...	2	...	...	...	...	...
Chemistry	...	...	$2\frac{2}{3}$	$2\frac{2}{3}$	2 [6]	$3\frac{1}{3}$ [6]	...
Physics	...	2 [3]	$3\frac{1}{3}$ [4]	$3\frac{1}{3}$ [5]	...	...	...
Nature Study	$1\frac{1}{3}$	...	...	...	...	...	...
Geometrical Drawing	$\frac{2}{3}$	...	...	...	...	...	...
Drawing	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	...	$1\frac{1}{3}$	...
Music and Singing	$1\frac{1}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$ [2]	...	$\frac{2}{3}$	$\frac{2}{3}$ [2]
Reading aloud and Recitation	$\frac{2}{3}$	...	...	...	...	...	...
Manual Instruction	2 [1]	2 [1]	2 [1]	...	...	...	...
Needlework	2 [2]	2 [2]	...	$\frac{2}{3}$ [2]	...	...	...
Cookery and Laundry	...	...	2 [2]	...	...	...	...
Physical Exercises	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	...	$\frac{2}{3}$	...
Précis Writing	...	...	...	...	...	$\frac{2}{3}$	...
Book-keeping and Business Method	...	...	...	$3\frac{1}{3}$ [5]	...	...	...
Civics	...	...	...	$1\frac{1}{3}$ [1]	...	...	$\frac{2}{3}$ [1]
Private Study	...	...	...	...	...	2	$1\frac{1}{3}$ [7]
Home Work	5	6	$7\frac{1}{2}$	10–$12\frac{1}{2}$	10–$12\frac{1}{2}$	10–$12\frac{1}{2}$	10–$12\frac{1}{2}$

[1] Boys.
[2] Girls.
[3] $1\frac{1}{3}$ hours English and 2 hours Physics may be taken in place of Latin.
[4] Latin and Physics may be taken.
[5] Latin or Physics or Book-keeping and Business Method may be taken.
[6] Latin or Chemistry may be taken.
[7] Latin or Private Study may be taken.

II.—Time Table of a Municipal Secondary School for Girls and Boys, with a slight Technical Bias.

(School Hours :—9.30 a.m. to 1 p.m., and 2.30 p.m. to 4.30 p.m.)

Form	V.U.A.	V.U.B.	L.V. R.	V.A.	V.B.	IV.R.	IV.A.	IV.B.	III.R.	III.A.	III.B.	III.C.	II.	I.
Average Age	Y. M. 15 11	Y. M. 16 4	Y. M. 15 8	Y. M. 14 0	Y. M. 14 5	Y. M. 14 3	Y. M. 13 1	Y. M. 13 1	Y. M. 13 3	Y. M. 11 10	Y. M. 12 5	Y. M. 12 7	Y. M. 11 2	Y. M. 10 6
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
English Lang. and Lit.	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	4	$4\frac{2}{3}$
History	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Geography	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Latin [1]	$2\frac{2}{3}$	$2\frac{2}{3}$	...	$2\frac{2}{3}$	$2\frac{2}{3}$	...	$2\frac{1}{3}$	$2\frac{1}{3}$	...	...	...	...	...	...
French [2]	4	...	...	...	...	...	...	...	...	...	...	...	...	...
German [2]	4	4	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	4	4	4	$3\frac{1}{3}$	$3\frac{1}{3}$
Arithmetic	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	2	2	2	$3\frac{1}{3}$	$3\frac{1}{3}$
Algebra	2	2	2	2	2	2	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	...	...
Geometry	2	2	2	2	2	2	2	2	2	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$\frac{2}{3}$	...
Trigonometry [3]	$1\frac{1}{3}$	...	...	$\frac{2}{3}$	$\frac{2}{3}$	...	...	...	...	...	...	...	...	...
Chemistry [4]	$2\frac{2}{3}$	...	$2\frac{1}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{1}{3}$	...	...	...	...	...
Physics [5]	$2\frac{2}{3}$	...	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{1}{3}$	$2\frac{1}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	...	...
Botany [4]	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{1}{3}$	$2\frac{2}{3}$	$2\frac{1}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{1}{3}$	...	...	...	...	...
Nature Study	...	...	...	...	...	...	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$
Drawing	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Music and Singing [6]	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Housewifery	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	...	...	...	...	...
Manual Instruction [8]	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Needlework [1] [8]	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	$2\frac{2}{3}$	1	1	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Cookery, Laundry [8]	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	...	...
Physical Exercises:														
Boys	$\frac{2}{3}$	$1\frac{1}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Girls	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Games	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Private Study [6]	...	...	$1\frac{1}{3}$	...	...	$\frac{2}{3}$ [7]	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$
Journals	...	...	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
Special Handwork	...	...	...	...	...	...	...	...	...	...	...	...	$1\frac{1}{3}$	$1\frac{1}{3}$
Homework	$10\frac{2}{3}$	$10\frac{2}{3}$	$10\frac{2}{3}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$3\frac{1}{3}$	$3\frac{1}{3}$

[1] Latin or Physics may be taken by boys; and Latin or Domestic Subjects by girls. [2] French or German may be taken. [3] Trigonometry or Music and Singing, or Physical Exercises may be taken. [4] Chemistry or Botany may be taken. [5] Physics or Domestic Subjects may be taken. [6] Music and Singing or Private Study may be taken in the case of boys. [7] Boys only. [8] Manual Instruction or Domestic Subjects may be taken.

Explanatory Note on II.

The girls have access to well fitted cookery and laundry rooms and in addition to Cookery and Laundry work they study Housewifery and Needlework.

Thus more time is assigned to Handwork subjects than is usually the case, and moreover, these subjects are taught in surroundings which bring the pupil into contact with the outside world.

All pupils take German as the first foreign language. This was determined before the war owing to the bearing of German science on the local industries (in this case mining and iron industries).

The curriculum in the first year is as follows:—English, History, Geography, German, Mathematics, Physics (Introductory Science), Handwork, Drill, Music, Games.

The subjects studied in the first year are continued throughout the school course with the exception that, at the beginning of the second year, Introductory Science is replaced by Chemistry (for boys) and by Botany (for girls). Differentiation begins in the second year. The better boys have a choice between Latin or Physics and the more able girls have a choice between Physics, Latin and additional Domestic Science. Only scholars with distinct literary ability are allowed to take Latin. Thus the majority study one foreign language, and, as a rule, those who take up Latin are intending candidates for an Arts Degree or for entry into profession (*e.g.*, law, medicine).

The weaker scholars have no opportunity of studying a second foreign language; instead they devote their time to practical subjects which are potentially vocational.

III.—Time Table of a Co-educational Boarding School.

(School hours :—9 a.m. to 12.50 p.m. No set hours in the afternoon.)

Form	VI.	V.	V.R.	V.B.	IV.A.	IV.R.	IV.B.
Average Age	Y. M. 16 8	Y. M. 16 8	Y. M. 16 5	Y. M. 14 9	Y. M. 13 6	Y. M. 14 4	Y. M. 12 10
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	$\frac{2}{3}$	$\frac{2}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
English Lang. and Lit.	$\frac{2}{3}$	2	$2\frac{2}{3}$	2	2	$2\frac{2}{3}$	2
History	...	2	2	2	2	2	2
Geography	...	...	$1\frac{1}{3}$	...	$1\frac{1}{3}$	$1\frac{1}{3}$	$1\frac{1}{3}$
Latin	$3\frac{1}{3}$	$3\frac{1}{3}$	...	$3\frac{1}{3}$	$3\frac{1}{3}$	...	$3\frac{1}{3}$
Greek	$3\frac{1}{3}$	4 [1]	...	$3\frac{1}{3}$ [1]	...	...	...
French	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$
German	...	4 [1]	...	$3\frac{1}{3}$ [1]	...	...	...
Mathematics	...	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$	$3\frac{1}{3}$ [4]	$3\frac{1}{3}$ [4]	$3\frac{1}{3}$ [4]
Chemistry and Physics	...	4 [1]	$3\frac{1}{3}$	$3\frac{1}{3}$ [1]	2	$2\frac{2}{3}$	2
Art [2]	...	...	...	...	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
Music and Singing [2]	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$ [3]	$\frac{2}{3}$	$\frac{2}{3}$ [3]
Manual Instruction	...	...	$1\frac{1}{3}$	...	$\frac{2}{3}$ [3]	2	$\frac{2}{3}$ [3]
Needlework [2]	...	...	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$	$\frac{2}{3}$
Home Work	16	14	14	11	$9\frac{1}{2}$	9	$8\frac{1}{2}$

[1] Greek or German or Chemistry and Physics may be taken.

[2] Art, Music and Singing, and Needlework are taken by girls only and in afternoon session only.

[3] Manual Instruction is taken in afternoon session only.

[4] Trigonometry is not taken in forms below V.B.

IV.—Time Table of a County Secondary School for Boys.

(School Hours :—9.35 a.m. to 12.50 p.m., and 2 p.m. to 4.15 p.m.

Form	II.C.	II.B.	II.A.	III.B.	III.A.	Shell	IV.B.	IV.A.	L.V.B.	L.V.A.	Remove	Upper VI.1.	Upper VI.2.	Sc. VI.1.	Sc. VI.2.
Average Age	Y. M. 10 9	Y. M. 12 2	Y. M. 11 4	Y. M. 13 0	Y. M. 12 9	Y. M. 13 4	Y. M. 14 0	Y. M. 13 11	Y. M. 15 0	Y. M. 15 0	Y. M. 16 10	Y. M. 16 2	Y. M. 17 4	Y. M. 16 5	Y. M. 17 2
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
English Lang. and Lit.	6¾	4½	4½	4½	2¼	2¼	3¾	2¼	3	3	3	1½	¾	1½	¾
History	2¼	1½	2¼	2¼	2¼	2¼	2¼	1½	2¼	2¼	2¼	4½	3	...	...
Geography	2¼	1½	1½	2¼	1½	1½	2¼	2¼	2¼	2¼	2¼	2¼	1½	...	...
Latin	...	...	...	...	3¾	3¾	...	3¾	...	3¾	...	...	...	...	...
French	...	4½	4½	4½	3¾	3¾	5¼	3¾	5¼	3¾	...	4½	3¾	¾	¾
German	...	...	...	...	3¾	3¾	...	3¾	...	3¾	...	4½	3¾	¾	¾
Italian	...	...	...	...	...	...	...	...	...	...	...	4½	3¾	...	...
Mathematics	5¼	4½	4½	4½	4½	4½	4½	4½	4½	4½	4½	...	¾	4½	4½
Chemistry	...	...	...	3	3	3	3	3	3	3	3	...	...	5¼	5¼
Physics	...	...	...	...	...	...	...	...	...	...	...	...	...	7½	7½
Nature Study	1½	1½	1½	...	...	...	...	...	...	...	...	...	...	...	...
Drawing	2¼	2¼	1½	1½	1½	1½	1½	1½	¾	...	...	...	...	...	...
Music and Singing	1½	1½	1½	...	...	...	...	...	...	...	...	...	...	...	...
Physical Exercises	2¼	2¼	2¼	1½	1½	1½	1½	1½	1½	1½	1½	¾	¾	1½	1½
Economics	...	...	...	...	...	...	...	...	1½	...	1½	3	3¾	...	...
Shorthand	...	...	...	...	...	...	...	...	...	...	1½	1½	1½	...	...
Accounting	...	...	...	...	...	...	...	...	...	...	...	1½	1½	...	...
Private Study	...	...	...	...	...	...	...	...	...	...	...	¾	3¾	2¼	4
Homework	7	7	7	7½	9	9	9½	10¾	10½	12½	13	15	15	15	15

V.—Time Table of a County Secondary School for Girls.

(School Hours :—9.15 a.m. to 12.30 p.m., and 2.30 p.m. to 4.30 p.m.)

Form	VI.	V.sp.	V.	IV.	Athens	Florence.	Rome.	Venice	III. sp.	II.a.	II.b.	II.sp.	I.	Prep.
Average Age	Y. M. 17 4	Y. M. 16 10	Y. M. 15 9	Y. M. 15 11	Y. M. 14 1	Y. M. 13 8	Y. M. 13 9	Y. M. 13 7	Y. M. 13 9	Y. M. 11 7	Y. M. 12 7	Y. M. 12 1	Y. M. 11 6	Y. M. 10 9
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	2⅔	...	⅔	⅔	1	1	1	1	1	1	1	1	1	...
English Lang. and Lit.	2⅔	1⅓	3⅓	4	4	4	4	4	2⅔	2⅔	2⅔	2⅔	3⅓	...
History	2	1⅓	2	2	2	2	2	2	2	2	2	2	2	2
Geography	...	1⅓	⅔	⅔	2	2	2	2	2	2	2	2	2	⅔
Latin	1⅓	2	4	...	...	...	2	2	...	...	...	...	...	...
French	...	⅔	} 4	{ ...	...	...	...	...	...	...	...	...	...	...
German	3⅓	2⅔		{ 4	3⅓	3⅓	3⅓	3⅓	4	3⅓	3⅓	3⅓	3⅓	...
Arithmetic	...	...	⅔	⅔	⅔	⅔	⅔	⅔	1⅓	3⅓	3⅓	3⅓	2⅔	...
Algebra	1⅓	⅔	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	...	...	...	...	...
Geometry	1⅓	⅔	...	...	...	...	...	...	...	...	...	...	...	...
Trigonometry	...	...	⅔	⅔	1⅓	1⅓	1⅓	1⅓	1⅓	...	...	...	...	...
Geology	4	...	...	...	...	...	...	...	...	...	...	...	...	...
Physics	...	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	} 2	{ ⅔	⅔	} 2	⅔	...
Botany	2⅔	1⅓ [1]	1⅓ [1]	1⅓ [1]	1⅓	1⅓	1⅓	1⅓		⅔	⅔			
Drawing	...	1⅓ [1]	1⅓ [1]	1⅓ [1]	2	2	2	2	1⅓	1⅓	1⅓	1⅓	1⅓	...
Music and Singing	1	1	1	1	1	1	1	1	1	⅔	⅔	⅔	⅔	1⅓
Manual Instruction	...	...	...	...	...	...	...	...	...	2	2	...	2	...
Needlework	...	...	...	1⅓	2	2	2	2	1⅓	1⅓	1⅓	1⅓	1⅓	...
Physical Exercises	1½	1⅓	1⅓	1⅓	⅔	⅔	⅔	⅔	2	2	2	2	2	...
Current Topics	⅔	⅔	⅔	⅔	⅔	⅔	⅔	⅔	⅓	⅔	⅔	⅔	⅔	...
Writing	...	...	...	...	...	...	...	...	...	...	...	⅔	...	...
Study	1⅔	6⅔	...	2	3	3	3	3	...	⅔	⅔	1⅓	1⅓	...
Homework	7½	7½	7½	7½	4	4	4	4	5	3½	3½	3½	3½	...

[1] Botany or Drawing may be taken. [2] Time varies and the subjects are optional. [3] Time varies. [4] Seniors 7½ hours, juniors 5 hours

VI.—Time Table of a High School with a Long Morning Session.

School Hours :—9.20 a.m. to 1 p.m., and on Monday only from 2.30 to 3.30 p.m.)

Form	Upper VI. M.S.	Upper VI. Sci.	Upper VI. Sec.	Lower VI. M.S.	Lower VI. Sci.	Lower VI. Sec.	Upper V.	Mid. V.	Lower V.	Upper IV.	Remove	Lower IV.	Upper III.A	Upper III.B.	Lower III.	II.
Average Age	Y. M. 17 9	Y. M. 17 8	Y. M. 18 10	Y. M. 16 10	Y. M. 17 4	Y. M. 17 4	Y. M. 15 9	Y. M. 16 8	Y. M. 14 11	Y. M. 14 4	Y. M. 15 1	Y. M. 12 9	Y. M. 12 2	Y. M. 12 8	Y. M. 11 5	Y. M. 10 7
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	¾	1½	1½
English Lang. and Lit.	3¾	1½	2¼	5¼	1½	2¼	2¼	2¼	2¼	2¼	3¾	2¼	3	3¾	3¾	6¾
History	4½	...	¾	4½	...	¾	2¼	2¼	1½	1½	2¼	1½	2¼	2¼	2¼	1½
Geography	...	...	¾	...	...	¾	¾	¾	¾	¾	¾	¾	1½	1½	1½	¾
Latin	1½	1½	...	...	...	...	2⅔	...	2⅔	2⅔	...	2⅔	...	...	...	...
French	4½	2¼	2¼	5¼	2¼	2¼	3	2¼	2¼	3	2¼	3	3¾	3¾	3¾	...
German	...	...	...	¾	...	...	2⅔	...	2⅔	2⅔	...	2⅔	...	...	...	...
Extra French (for one language pupils)	...	...	...	...	...	...	2⅔	2¼	...	1⅓	1½	...	...	...	...	...
Arithmetic	...	¾	...	...	...	¾	¾	1½	¾	¾	1½	¾	3¾	3¾	3	3¾
Algebra	...	...	...	...	2¼	...	1½	...	1⅓	1½	...	1⅓	...	...	...	...
Geometry	...	...	...	...	2¼	...	1½	...	1½	1½	...	1½	...	...	...	...
Book-keeping	...	...	¾	...	...	¾	...	...	...	...	...	...	...	...	...	...
Household Economics	...	...	...	...	...	...	...	...	...	...	¾	...	...	...	...	...
Chemistry	...	5¼	...	...	5¼	...	4	...	2	2¼	...	...	...	¾	...	...
Physics	...	3¾	...	...	4½	...	...	...	...	...	...	2¼	1½	¾	...	...
Botany	...	4½	...	...	4½	...	2	2¼	2	...	...	...	...	¾	¾	¾
Shorthand and typewriting	...	...	10	...	...	7¾	...	...	...	...	...	...	...	...	...	...
Spanish	...	...	2¼	...	...	3	...	...	...	...	...	...	...	...	...	...
Drawing	...	...	...	...	...	...	...	1⅓	¾	¾	¾	¾	¾	¾	1½	1½
Music and Singing	¾	¾	¾	¾	...	¾	¾	⅔	1½	1½	1½	1½	1½	1½	1½	2¼
Handwriting and arrangement	...	...	¾	...	...	¾	...	...	...	...	...	...	...	...	...	...
Manual Instruction	...	...	...	...	...	...	...	...	...	...	1½	...	...	...	¾	¾
Needlework	...	...	...	...	...	...	...	...	...	¾	¾	¾	¾	¾	¾	1½
Physical Exercises	¾	...	...	¾	...	¾	¾	¾	1½	...	1½	1½	1½	1½	1½	1½
Extra English	...	...	...	...	...	...	...	1½	¾	⅔	...	...	...	...	...	...
Civics	...	...	...	...	...	...	...	...	¾	...	...	...	...	...	...	...
Economics and Economic Hist.	1½	...	1½	2¼	...	1½	...	...	...	...	...	...	...	...	...	...
Home Science	...	...	...	...	...	...	...	...	...	...	¾	...	...	...	...	...
Homework	15	15	15	15	15	15	12½	12½	11	9	9	7½	7	6⅓	7	5½

VII.—Time Table of a Large Modern Boarding School for Girls.

Form	Upper V.1.	Upper V.2.	Upper V.3.	V.1	V.2	V.3	Lower V.1.	Lower V.2.	Lower V.3.
Average Age	Y. M. 16 6	Y. M. 16 9	Y. M. 16 4	Y. M. 14 6	Y. M. 15 0	Y. M. 15 3	Y. M. 14 0	Y. M. 14 2	Y. M. 14 4
	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.	hrs.
Religious Instruction	2	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
English Lang. and Lit.	2	2	1⅓	1⅓	1⅓	1⅓	2	2	2
History	2	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Geography	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Latin[1]	3⅓	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔
Greek	2	...	...	...	...	...	...	...	...
French	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔
German[1]	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	2⅔	3⅓
Arithmetic	4	4	4	4	4	4	4	4	4
Algebra									
Trigonometry, &c.	4	...	...	...	...	...	...	...	...
Chemistry	4	2	2	1⅓	1⅓	1⅓	...	...	...
Physics							2	2	2
Botany	2	1⅓	2	...	...	...	...	...	...
Art	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Music and Singing	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Ear Training	...	1⅓	1⅓	1⅓	1⅓	1⅓	⅔	⅔	⅔
Part Singing	...	...	...	...	...	...	⅔	⅔	...
Manual Instruction	1⅓	1⅓	2	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Needlework	...	...	⅔	⅔	⅔	⅔	⅔	⅔	1⅓
Physical Exercises	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Drill, Dalcroze or Dancing	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓
Elocution (Special)	1⅓	1⅓	1⅓	1⅓	1⅓	1⅓	⅔	⅔	⅔
Homework	12 to 15 hours weekly								

[1] Latin or German may be taken.

In School.—Morning hours. 9.0 a.m. to 12.30 p.m. in five periods with an interval of 20 minutes from 11 to 11.20.

Afternoon hours.—In Winter : 4.30 to 6.30 in four periods of 30 minutes devoted to lessons or preparation or music or dancing.

In Summer : 2.0 to 4.0.

In addition to this, 30 minutes' preparation is done in the houses from 8.0 a.m. to 8.30 a.m. by all girls, and 60 minutes' preparation from 7.30 p.m. to 8.30 p.m. by the older girls.

Organized games are played from 2.10 p.m. to 3.20 p.m. daily in winter, and for a rather larger period on Saturday. Organized games are played from 4.30 p.m. to 6.0 p.m. daily in summer and rather longer on Wednesday and Saturday.

The girls are free on Saturday afternoons and evenings when not at play. On Sundays and whole holidays the girls have a fair amount of leisure.

There is a School Literary Society, Dramatic Society, Voluntary Part-Singing, School choir, and there are Assistant Editors (chosen from the girls) for the School Gazette.

The five or six girls at the top of each house act as house-monitors and much of the discipline of the house is in the hands of the Head of house. There is also a house captain who is responsible for the organisation of the house games. The Sixth Form act as School monitors, and are held responsible to a great extent for the discipline of the School.